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This is the author's manuscript

Original Citation:

Availability:

This version is available http://hdl.handle.net/2318/1627806 since 2021-03-25T12:48:54Z

Published version:

DOI:10.1108/JIC-01-2016-0019

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09 August 2022

Exploring Voluntary External Disclosure of Intellectual Capital in Listed Companies: an Integrated Intellectual Capital Disclosure Conceptual Model

Abstract

Purpose
The purpose is to create a conceptual model that practically assists companies to produce an effective voluntary external intellectual capital disclosure (ICD) and valorises both the company's and the stakeholders' role. It illustrates the relationship among voluntary ICD mechanisms and it takes into consideration the feedback mechanism from external stakeholders.

Design/methodology/approach
Nielsen and Madsen's (2009) study constitutes the framework of our conceptual model, as it refers to a "sender to receiver" model, which is particularly useful for our research.

Findings
An effective ICD may only be achieved through a combination of decisions taking into account each individual company's needs and stakeholders' ones. In addition, the dimensions on which our conceptual model is based are already in use in other widespread disclosure models, and this favours the company.

Research limitations/implications
Limitations concern design features, recipients and validity of the conceptual model.
In terms of theoretical implications, the model emphasizes an "integrated ICD" approach; in addition, our model is based on some dimensions which characterize widespread and general communication models already in use.

Practical implications
First, this relates to the production of an effective ICD when considered as "one-way information", from the company to the stakeholders. Second, this relates to the interaction between the company and its stakeholders, within a dyadic exchange.

Originality/value
Our conceptual model is based on some dimensions which characterize widespread and general communication models already in use, that in our model are applied to ICD. Therefore, companies may favour making an ICD, as they are already confident and familiar with these dimensions.

1. Introduction

The communication process allows a company to interact with its stakeholders (Meigs et al., 2001). They need an open, honest, transparent and comprehensive communication strategy (Giacosa, 2012; Nielsen and Madsen, 2009) for evaluating the company's economic and business activity (Strathern, 2000) and the consequent supply of resources. In light of some well-publicized accounting scandals, such as those of Enron and Parmalat, the need for transparent and comprehensive communication has never been more pressing. Indeed, the "lack of innocence" (Strathern, 2000) caused such major financial misdemeanours.

Within the communication process, the company has to focus on disclosure, revealing information that was previously secret or unknown (Dumay, 2016) about its assets and resources. Among them, intellectual capital (IC) represents a relevant intangible asset (Blair and Wallman, 2001; Goldfinger, 1997). Therefore, one of the dominant research topics in IC is the production and dissemination of intellectual capital disclosure (ICD), which is particularly relevant for companies characterized by significant levels of intangible assets (Gelb, 2002). The relevance of ICD is confirmed in the recent and wide-ranging literature on the topic. Marzo and Scarpino (2016), for example, explained how ICD allows a company to focus on all categories of human, organizational (structural) and relational capital. In addition, Chiucchi and Montemari (2016) focused their attention on how and why a company produces an effective ICD. Researchers often use ICD and IC reporting interchangeably, despite the fact that they are not synonymous. Referring to IC, disclosure refers to "the revelation of information that was previously secret or unknown", while reporting presents a "detailed periodic account of a company's activities, financial condition, and prospects that is made available to shareholders and investors" (Dumay, 2016).

In the context of ICD, the literature focused on several means for its dissemination, in particular on annual reports (Abeysekera and Guthrie, 2005) and different ICR frameworks (Mouritsen et al., 2001; Mouritsen et al., 2003). Despite their limitations, annual and IC reports have been considered an appropriate means for ICD dissemination (Adams, 2015; IIRC, 2013). However, from an analysis of company practices, there is very little evidence of companies reporting on IC resources, despite Skandia (1994 and 1995) showing that managing and reporting IC could improve the relationship between a company and its stakeholders. Recently, Dumay (2016) affirmed that ICR, under the provision of Skandia, is limited and most of those who believe in reporting-based IC wealth-creation are not managers, but management gurus, accountants, consultants and academics. One of the last company reports that resembled an IC report was published by Infosys (2011). It presents an economic value added statement, with a balance sheet detailing intangible assets and an intangible assets score sheet. This is not included in the annual report, but in a separate document entitled "30 years of Infosys: additional information".

The literature emphasizes the relevance of ICD from a theoretical point of view. Given that the standardization of soft intangibles (such as IC) is very problematic (Lambert, 1998), voluntary disclosure could be a more suitable and flexible way forward than a compulsory one in producing an effective ICD (Giacosa, 2012). In this context, voluntary disclosure expresses the will of the company in providing additional information to stakeholders more than a compulsory one (Friedman and Miles, 2001; Quagli and Teodori, 2005). Indeed, some studies highlighted the relationship between the amount of voluntary disclosure and the company's perceived reputation (Hasseldine et al., 2005; Lombardi et al., 2015a), which influences the level of resource made available from the stakeholders (Leftwich, 1980; Watts and Zimmerman, 1986). However, a model that illustrates the relationships among voluntary ICD mechanisms is absent from the literature. This represents an important research gap that this paper aims to fill up proposing a new model of ICD. This allows the firm to reveal and address a relevant problem: How is it possible to produce an effective voluntary ICD, in which both the company and the stakeholders play a relevant role? So, this model may practically assist an effective voluntary external ICD and it would also make way for a feedback mechanism from external stakeholders.

Thus, the purpose of our research is to create a conceptual model that practically assists companies to produce an effective voluntary external ICD and valorises both the company's and the stakeholders' role. In particular, this model illustrates the relationship among voluntary ICD mechanisms and it takes into consideration the feedback mechanism from external stakeholders. For these reasons, there are advantages to thinking in terms of our conceptual model, both for companies and stakeholders. A strong ICD policy could improve an interdependent relationship with stakeholders (Nielsen and Madsen, 2009) and this level of transparency supports them in their evaluation of the company's productivity (Strathern, 2000). It may therefore have an impact on the company's supply of resources (Giacosa, 2012).

Our conceptual model is original in some characteristics compared to previous studies. This is because our conceptual model is based on some dimensions (the frequency, the content and the means of disclosure) which characterize widespread and general communication models already in use (Corvi, 2000; Giacosa, 2012), that in our model are applied to ICD. For this reason, companies may favour making an ICD, as they are already confident and familiar with these dimensions.Nevertheless, our conceptual model differs from other models focused on non-IC disclosures. Indeed, the proposed model strongly valorises the feedback mechanisms from stakeholders after the company's ICD. Therefore, the relevance of ICD is strengthened, as an in-depth knowledge of IC resource may influence the stakeholders' behaviour and impact on the supply of new resources. Despite its features and potentialities, a similar conceptual model may not yet be in use. The reasons may be linked to the nature of IC. First, IC is not a straightforward asset on which to base disclosure information, as it is a fleeting company resource. Second, the benefits of ICD on increasing the company's profitability are not empirically proven. Lastly, management may decide not to disclose a relevant resource to their competitors, unless releasing that information is of benefit to them.

The article is structured as follows: First, an analysis of the ICD theoretical background is given, drawing particular attention to the purpose of the paper, and identifying a gap in the literature. Second, the research method is outlined, followed by an illustration of the model and its main dimensions and mechanisms. Finally, conclusions and the theoretical and managerial implications of the study are set out, as well as the research limitations, and how these limitations might inspire and influence future research.

2. Literature backbone

A vast literature focuses on ICD, as IC is one of the most representative and elucidating resources a company owns (Dumay, 2012). Indeed, IC contributes towards the company's value creation (Blair and Wallman, 2001; Goldfinger, 1997; Trequattrini et al., 2012) and the development of a sustainable competitive advantage (Kremp and Mairesse, 2002). In this branch of research, several definitions of ICD have been proposed by various authors (Guthrie et al., 2012; Dumay, 2009a, 2013 and 2014). From all of the definitions of ICD given in the literature, the one chosen for the purpose of this study is from Dumay (2016): disclosure is "the revelation of information that was previously secret or unknown". Our literature review was made according the way companies may increase transparency towards stakeholders through an effective ICD and within a "sender to receiver" model (Nielsen and Madsen, 2009; Parker et al., 1989; Van Riel, 2000) (which is so useful for our research as illustrated in the Research method section).

The development of specialized areas of inquiry to investigate different aspects of ICD has contributed to its rapid advance and relevance. Considering the innumerable published texts on ICD, we did not scan and map the whole literature in terms of IC definition, research questions, methodological approach or key results. Instead, we performed an in-depth analysis of more than fifty papers, paying particular attention to the topic of our research. First, we analyzed some key aspects of ICD dissemination, then we tried to integrate the concept of transparency for an appropriate ICD into the "sender to receiver" model. The literature review allows us to identify an important research gap, mentioned in the introduction, as a model that illustrates the relationships among voluntary ICD mechanisms is absent from the literature. This paper aims to fill up this research gap by proposing a new model of ICD, which may practically assist an effective voluntary external ICD and would also make way for a mechanism for feedback from external stakeholders.

2.1 ICD dissemination

Several studies focused on the different means of ICD dissemination. It emerged that scholars concentrated on several areas and tools (Dumay and Tull, 2007). Among those studied, the annual report (Abeysekera and Guthrie, 2005) and ICR (Mouritsen et al., 2001; Mouritsen et al., 2003) have been considered the most appropriate tools for this purpose. Scholars analyzed annual reports in order to elicit any common ICD practices (Guthrie and Petty, 2000; Abeysekera and Guthrie, 2004). Nevertheless, the role of the annual report in ICD is decreasing (Mouritsen et al., 2004), for at least the following reasons: first, the traditional annual report does not contain relevant information about the future value creation of a company's resources (including IC); second, many studies indicated an anomaly between the type of information contained in the annual report and that required by the market (Eccles and Mavrinac, 1995; Eccles et al., 2001); third, the inclusion of IC in the annual report is not a requirement of the present accounting standards (Francis and Schipper, 1999; Brüggen et al., 2009).

Regarding ICR, Bismuth and Tojo (2008) argued that it improves investors' decision-making process in evaluating future performance and risks, and reduces information asymmetry. Therefore, it decreases biased or unfounded earnings estimates, unrealistic valuations and unjustified share price volatility. For these reasons, it can impact positively on the company's attitudes towards providing funding at a lower cost of capital. Nevertheless, this theory has been criticized for its lack of any comprehensive evidence (Dumay, 2012). In addition, it emerged that managers are more concerned with IC management for its internal benefits rather than its potential in attracting investors and additional finance (Mouritsen et al., 2001; Tee Jeok Inn et al., 2015). Consequently, ICR may already be doomed to fail (Flower, 2015), due to several reasons (Dumay, 2016). First, IC is a fleeting company resource. For it to be reported on successfully, it requires a strategy that takes the nature of these assets into account (Dumay, 2016). Second, sometimes companies measure and report IC even if they do not manage it under the IC banner (Ordóñez de Pablos, 2003). Third, the main purpose for developing IC is the creation of value inside the company rather than its reporting (Tee Jeok Inn et al., 2015). This is also confirmed by the fact that investors are likely to use a wide variety of informational sources, which do not primarily include IC reports (Dumay, 2016). In addition, retail investors are more interested in newspaper reports and annual reports (Australian Government Financial Reporting Council, 2013). Also, Mouritsen et al. (2001) affirmed that the sample companies are more interested in the internal benefits of managing IC and not necessarily in the external benefits, such as attracting investors and additional finance. Fourth, managers who understand the power of managing IC may decide not to report on their IC resources to their competitors (Dumay, 2016), unless releasing that information is of benefit to them (Healy and Palepu, 2001). Fifth, corporate social responsibility and sustainability reporting have become the main topics of voluntary reporting rather than a company's IC (Dumay, 2016). Lastly, there is a complete lack of regulatory enforcement on the matter (Flower, 2015). Indeed, no framework has been able to strengthen the role of ICR (Milne and Gray, 2013), despite continued calls for the inclusion of such additional information for investors beyond the financial one.

Several researchers focused on the employment of integrated reporting in ICD (Veltri and Silvestri, 2015). Integrated reporting provides a clear and concise representation of how the company creates value (from present and future perspectives). It focuses on several company aspects on a common platform, such as governance, financial capital, intellectual capital, social capital and environmental capital, which are unified under the company's vision and values (Abeysekera, 2013). Consequently, integrated reporting should discuss how IC and other forms of capital (such as financial and human capital) contribute to the value creation over time (Zambon and Marzo, 2007; Abhayawansa and Guthrie, 2010). Some research stated that integrated reporting could improve ICD, thanks to a holistic view of the firm's value creation with regard to its resources (including IC) (Abhayawansa, 2013; Beattie and Smith, 2013). Several authors have focused on how to approach and present the ICD. In particular, Guthrie and Petty (2000) stated that ICD may be expressed discursively and qualitatively, rather than quantitatively. ICD can thus be presented in several forms, such as simple one-page matrices (Sveiby, 1989; Boedker, 2005), as supplements to annual reports, or as a comprehensive independent document (Systematic, 2002, 2004). A debate is under way about the ICD's impact on asymmetric information. One group of scholars stated that an effective diffusion of ICD could overcome the asymmetry of information on IC. A reduction of the asymmetric information may decrease the costs of capital, as the stakeholders could better estimate company risk (Bontis, 2003; García-Meca, 2005). For a second group of scholars, the level of ICD is not related to the level of information asymmetry; in certain economic sectors, ICD has been considered a matter of common practice, irrespective of the level of information asymmetry between management and investors (Brüggen et al., 2009).

2.2 Transparent and appropriate ICD within a "sender to receiver" model

Our conceptual model valorises both the company's and the stakeholders' role. In particular, we need to incorporate the concepts of transparency and appropriateness between the sender (the company) and the receiver (the stakeholders), as it may improve its effectiveness (Giacosa, 2012).We then consider the role of transparency in an effective ICD. Generally speaking, the purpose of transparency has been considered a social mantra (Strathern, 2000), which supports an interdependent relationship (Nielsen and Madsen, 2009) between the company and its stakeholders, and supports their decision-making process (Christensen, 2002). Indeed, the company needs a series of inputs from its stakeholders to feed into the production process, who in turn require a range of information in order to evaluate the "real productivity of the company" (Strathern, 2000). Furthermore, KPMG (2001) viewed transparency with stakeholders as a supplementary reporting practice that gives them a better foundation on which to base their decisions. Despite the fact that transparency is considered a social mantra, Strathern (2000) stated that we need to be wary of companies claiming total transparency in their reporting. Indeed, these claims would need to be investigated and their reports carefully analyzed to ensure such companies weren't being misleading. Only the reporting of the most relevant information could be considered appropriate (Eccles et al., 2001). Appropriate information is a combination of quantitative and qualitative relevant data (Ambler et al., 2001), in the form of text, numbers and figures, alongside a narrative of explanatory notes (GRI, 2002) about IC resources. Appropriate information also needs to be comparable both through time and between companies (Eccles et al., 2001). The information included in an ICD should be carefully selected for each type of stakeholder, as it is more important for the information to be relevant than abundant (Ward, 2001).

For the above reasons, the company could reach a certain level of transparency and appropriateness when it discloses information relating to company strategy (Corvi, 2000). This is also true of disclosing details of IC, due to its relevance in the company's business matters (Blair and Wallman, 2001). It means that transparency could be reached by disclosing information considered appropriate for both the company and the stakeholders (Nielsen and Madsen, 2009).Given how transparency and the selection of appropriate information on IC have been deemed so important, it emerged that traditional means (such as annual reports and ICR) frequently do not meet these standards of transparency and relevance with regard to a company's performance and its potential growth (Adrem, 1999; Eccles and Mavrinac, 1995) nor in terms of IC (Dumay, 2016). This is due to the fact that these traditional means primarily relate to matters concerning tangible assets, and are usually not focused on other resources, such as intangible ones.

3. Methodology

As already mentioned, a model that illustrates the relationships between voluntary ICD mechanisms is absent from the literature. This represents an important research gap that this paper aims to fill. This model should produce an effective voluntary ICD, in which both the company and the stakeholders play a relevant role. In particular, it should practically assist the production of a successful voluntary external ICD and would also make way for a mechanism for feedback from external stakeholders. On this basis, our research question has to identify the most relevant dimensions that have an impact on an effective voluntary ICD, which the company has to take into careful consideration within the relationship with the stakeholders. Therefore, we set out the following research question:

How is it possible to make an effective voluntary ICD, in which both the company and the stakeholders have a relevant role?

Thus, the purpose of our research is to create a conceptual model that practically assists an effective voluntary external ICD for companies and valorises both the company's and the stakeholders' role. In particular, this model illustrates the relationships between ICD mechanisms and it takes into consideration the feedback mechanism for external stakeholders.

3.1 Framework

Nielsen and Madsen's (2009) study constitutes the framework of our conceptual model. The authors identified and discussed the idea of transparency and appropriateness within the field of IC. Their research is based on the concept that transparency is a necessary "mantra for publicly listed companies", which should be combined into an appropriate disclosure. We decided to focus our analysis on the listed companies, as they interact with a large range of stakeholders. In particular, a listed company has more complex informational needs than a non-listed one, as it has to respect the legal constraints imposed on it in terms of the requisite content relayed and, in addition, it must deal with a high number and variety of stakeholders. Having this wide audience, and considering the role of IC for the company's business and growth, a listed company has to be encouraged to make a voluntary ICD for the stakeholders, which is more flexible than the compulsory disclosure in showcasing soft intangible resources (such as IC) (Giacosa, 2012).

We chose this framework as it refers to a "sender to receiver" model (Parker et al., 1989; Van Riel, 2000), which is particularly useful for our research. Indeed, this model takes into consideration the interaction between the company and the stakeholders in a kind of dyadic exchange. A sender (the company) needs to interact with a receiver (its stakeholders) for their supply. For this reason, the company sends a message to the stakeholders, which allows them to evaluate the company's activities. ICD has to belong to that message. Then, stakeholders send feedback to the company, in the form of their positive or negative response to a new resource supply. In this context, our framework supports our research, as it allows attention to be paid to the sender (in addition to the receiver) and on its needs and decision-making process in terms of disclosure. Other models tend to focus on the informational needs of the receiver (and less on the sender's) (Nielsen and Madsen, 2009).

3.2 Design of the conceptual model

The proposed model results from the combination of some ICD key questions or dimensions. Dimensions have been identified in different levels of investigation: i) the frequency of ICD; and ii) the contents and means of ICD.

Regarding the first level of investigation, we considered the frequency of ICD (when IC should be disclosed). This dimension has been selected previously both due to its relevance into the literature and its usefulness for our investigation. Indeed, each level of frequency should be characterized by a different amount of useful and recommended disclosure (Giacosa, 2012; Mitchell et al., 1997). For this reason, it would be useful to first make a distinction between levels of frequency, which would each dictate how the company responded to that frequency, in terms of suitable content selection and means of dissemination.

Regarding the second level of investigation, and during our investigation process, emerged a need to consider both the contents of ICD (for identifying what ICD content should be disseminated) and the means of ICD (for identifying how ICD should be disseminated) for a transparent and appropriate disclosure. As stated in the literature, for disclosures to be effective, each frequency should be characterized by its own suitable and appropriate content, the combination of which improves the completeness and efficacy of ICD (Lang and Lundholm, 1993). In addition, we need to consider the means through which the company diffuses ICD. Consequently, the content of an ICD should be published using an appropriate medium and this choice of dissemination method may differ according to the frequency of the ICD (Giacosa, 2012).

In conclusion, we chose these dimensions (the frequency, the contents and the means of ICD) for the following reasons. First, they characterized widespread, commonplace and general communication models found to be both in the literature and already in use by some companies (Corvi, 2000; Giacosa, 2012). Second, careful management of these dimensions may favour both a one-way information and a dyadic exchange between the company and the stakeholders, for reaching an effective ICD (Giacosa and Mazzoleni, 2012). Each dimension has been discussed, first individually (in Section 4) and then in combination (in Section 5), highlighting some mechanisms for an effective periodic reporting and for a disclosure at time of event. The proposed model does not provide a weighting for each dimension, according to their role in making an effective ICD. Indeed, the measurement of the model's effectiveness does not fit the purpose of our research.

4. The dimensions of the ICD conceptual model

Each dimension of our conceptual ICD model is analyzed below and illustrated in Figure 1. The conceptual model is then developed in the following section, considering the combination of each dimension in turn and highlighting some mechanisms for an effective ICD.

[Insert Figure 1 here]

4.1 ICD model level 1: when IC should be disclosed?

At the first level of investigation, the company should decide how often to make an ICD. Higher levels of frequency increases the amount of up-to-date information the stakeholders receive. It would, however, be difficult to define a high, medium and low frequency benchmark for all companies, as the circumstances and informational needs of each company varies. In addition, it would be necessary to identify a generic threshold (valid for all companies) according to which the company's behaviour would be categorized. For this reason, we decided to classify the level of frequency of disclosures according to the events about which the company produces ICD (Corticelli, 1984; Giacosa, 2012). We identified the following level of frequency of disclosure: i) the periodic reporting; and ii) the disclosure at the time of event.

Regarding the periodic reporting, this is systematic, such as quarterly and/or half-yearly or yearly. It consists of an ordered set of messages, addressed to the same recipients, characterized by the method and regularity of communication. Periodic reporting may be advantageous both for the sender (the company) and the receiver (the stakeholders). It may benefit the company, as it demonstrates a willingness to be open and transparent with stakeholders on a regular basis. In addition, it offers the stakeholders the opportunity to regularly and thoroughly evaluate the business's activity (Mitchell et al., 1997). Therefore, their company's evaluation is based on up-to-date information and linked to the "real productivity of organizations" (Strathern, 2000). Consequently, the stakeholders' decision-making is more informed.

Regarding the disclosure at the time of event, this approach produces information in relation to contingent and ad hoc events (such as tender offers, merger and acquisition plans, and plans for business recovery). Every ICD model should contain extraordinary disclosures on how these types of events impact on IC resources. A disclosure at time of event may be advantageous both for the sender and the receiver. The sender offers the receiver the opportunity to be informed about the exceptional events, which may positively or negatively impact on IC resources. In addition, it allows both the company to reveal its true status (Strathern, 2000), and the stakeholders an opportunity to make relevant decisions based on the current state of affairs with regard to the exceptional events.

4.2 ICD model level 2: what kind of IC contents and how should be disseminated?

At the second level of investigation, we identified different content and means for a transparent and appropriate disclosure. The company has to decide what information the ICD should contain, taking into account the fact that only a mix of information offers the completeness and efficacy of a successful ICD (Lang and Lundholm, 1993). Given the discretionary nature of a voluntary ICD and its mutability from company to company, it is not easy to classify the ICD content. Nevertheless, it is possible to identify some areas that lead to the production of ICD, which are interconnected and closely linked to the company's activity (Quagli, 2001; Quagli and Teodori, 2005). In particular, we identified the following contents: i) economic and financial information; ii) performance information; and iii) forecasted information.

Regarding the economic and financial content, ICD should provide a detailed description of the impact of IC investments, in economic and financial terms. In particular, disclosure has to be inherent to specific aggregates, such as production lines, divisions or geographical areas. Regarding the performance content, ICD should contain information on the performance of the company's IC investments (Neely, 1999; Harbour, 2009). Performance disclosure - complementary to economic and financial information - provides a detailed interpretation of the reasons for IC investments' outcomes. It has to strengthen the role of the IC investments, which constitute a fundamental part of the company's competitive strategy. In addition, every risk on IC investments has to be declared and evaluated, as there are inherently greater risks on this type of asset. ICD should contain information on the performance of the company's IC investments (Neely, 1999; Harbour, 2009). Performance disclosure - complementary to economic and financial information - provides a detailed interpretation of the reasons for IC investments' outcomes. It has to strengthen the role of the IC investments, which constitute a fundamental part of the company's competitive strategy. In addition, every risk on IC investments has to be declared and evaluated, as there are inherently greater risks on this type of asset. Regarding the forecasted information content, a full ICD has to be oriented to the projected data and scenarios (Cacia, 2010; Guidara, 2011). Indeed, the stakeholders have to understand both what the possible courses of action would be in a potential future scenario, and the likely consequent performance of IC investments.

We then considered how to produce an ICD. Some of the methods can be categorized as follows (Guidara, 2011; Giacosa, 2012): i) traditional means; ii) digital means; and iii) some innovative technological means. Regarding to traditional means, some means of communication do not rely on modern technology, such as annual reports and press releases. First, the annual report – it's a commonplace method of reporting that all companies are familiar with. Second, the press release – it has several advantages, as it allows the company to communicate a series of events in a timely manner and can easily reach a wide audience. Nevertheless, the company must adopt a transparent policy, avoiding a tendency to highlight only good news and hide the bad. Regarding the digital means, thanks to modern technologies, some digital means are available for the purpose of making an ICD. According to time-based competitiveness (Gennari, 2002), websites are a means by which to communicate IC in a multi-purpose (institutional, commercial and financial) manner. Websites hold dual value for the company: on the one hand, they are a repository of large amounts of company information made available to stakeholders; on the other hand, the company website is a means of communication through which the company publishes financial information (González-Herrero and Smith, 2008; Guelfi and Giacosa, 2003). Regarding some innovative technological means, social media and other innovative platforms, such as LinkedIn, Facebook, Twitter and

Google+, provide the means by which to develop an interactive relationship between individuals, companies and objects thanks to their great interactive features (Casprini and Di Minin, 2015). The interaction takes place in real time, simultaneously. Choosing the right mean of disclosure is determined by the size of the company, its budget, and its informational needs.

5. The mechanisms beyond the ICD conceptual model

Each dimension of the ICD conceptual model (when, what, how) has been discussed in the previous section, highlighting the features that may impact on an effective ICD. In this section, our conceptual model is developed. As stated into the methodology section, our first level of investigation is the frequency of ICD. Each level of frequency has been combined with the contents and the means for an effective ICD. This combination allows us to identify and discuss six mechanisms for an effective periodic reporting, and seven mechanisms for a disclosure at time of events by which the company may reach an effective ICD (Figure 2).

[Insert Figure 2 here]

We decided to first illustrate the mechanisms of a disclosure at time of event. Indeed, this part may be considered the most value added of our research, because the company – in its communication process – is generally more confident in creating a periodic report than a disclosure at time of event (Corvi, 2000; Giacosa, 2012). Therefore, the mechanisms identified for a disclosure at time of event may be more useful to the company in producing an effective ICD.

5.1 The disclosure at time of event

Investors are looking for more timely information, especially if it is "previously secret or unknown" (Dumay, 2016). In addition, a company has a legal obligation to release to the market that information which could affect its share price. For this reason, disclosure at time of event is typically focused on price-sensitive information, which, however, is not contained in periodic reports (Dumay 2016). The choice of ICD content must be consistent with the reasons for which the company wants to convey the message. It is a difficult choice, as the ICD has to deliver to the recipients not only the right content, but also the ideas, opinions and values of the company (Mussari et al., 1998). The company needs to consider that a richer and more complete range of voluntary disclosure may increase stakeholders' confidence in the company (Gigler and Hemmer, 2001). In addition, a careful selection of the content of the ICD ensures a clear, comprehensive, transparent and relevant disclosure (Nielsen and Madsen, 2009). Regarding the means of ICD, the company has to take into consideration the different features and potentialities of each one, which could be suitable for some content but not for others within the limits of a particular disclosure frequency (Guelfi and Giacosa, 2003).

We then combined disclosure at time of event to possible content and means of communication. We identified the following mechanisms: i) economic and financial content disseminated through traditional means; ii) economic and financial contents disseminated through digital means; iii) economic and financial contents disseminated through innovative technological means; iv) performance contents disseminated through traditional means; v) performance contents disseminated through digital means; vi) forecasted data disseminated through traditional means; vii) forecasted data disseminated through digital means. The mechanisms outlined by the conceptual model within disclosure at time of event are outlined below.

Regarding the first mechanism, disclosure at time of event has to illustrate the economic and financial impact of an exceptional event on IC resources (such as the event's economic and financial impact on initial IC investments, and the amount of any due depreciation), which allows the company's IC investments to be compared with other companies' at a certain time. To be effective, this information has to be focused on specific aggregates, such as production lines, divisions or geographical areas, in order to provide a more detailed description about each single IC investment. The economic and financial disclosure after that event has to be focused on quantitative variables, represented by the capital and the net profit derived from IC investments, or on qualitative aspects, which provide an illustration of the aforementioned quantitative ones. It is useful information both for the stakeholders and the company, as the IC may be influenced by exceptional events, increasing or decreasing its role in the company's activities as a result (Giacosa and Mazzoleni, 2012). Of all the different traditional means, this type of information should only be disseminated via press releases. Press releases may communicate the economic and financial impact of a series of events on IC investments in a timely and periodic manner, which may influence the company's situation. The annual report, on the other hand, is not a suitable vehicle for this information as it is only published at a set time once a year (Giacosa, 2012).

Regarding the second mechanism, this could be disseminated via the company website, as online information can be published in a timely fashion and can promptly relay economic and financial data (Guelfi and Giacosa, 2003) (such as the event's economic and financial impact on initial IC investments, and the amount of any due depreciation, articulated by different aggregates). Thanks to its range of features, online publication has many advantages, such as the search-ability and personalization of information. With regard to search-ability, the user can find a particular piece of IC economic and financial information simply by entering some key search words. Lastly, the internet is a platform for highly customized information; with the use of cookies, internet-ready devices can store each users' search results and websites visited and tailor future searches accordingly. Nevertheless, it has its disadvantages too, and the company should not overlook them: First, data security (including protection from cyber attacks from external parties); Second, it is not always possible to trace the history of regularly updated information on a given subject, as sometimes revised data replaces the previous version. For this reason, companies should maintain a repository of archived copies of the old documents for reference. A good example of an ICD via the internet is from Westpac Bank (Dumay, 2016). In particular, its website allows stakeholders to follow new disclosures in relation to its sustainability strategy, and its impact on economic and financial situation.

Regarding the third mechanism, social media and other innovative platforms allow the company to create and develop an interactive relationship with stakeholders through which information on exceptional events can be conveyed and responded to instantaneously. These means are characterized by a high degree of interactivity, as they help to create connections between individuals, companies and objects. In addition, they are easily personalized, as they are quite simple to use and to implement according to the informational needs of the users. Lastly, these means have versatile and transversal functions, as they are accessible from any internet-ready device. Therefore, they offer multiple possibilities and levels of use. Thanks to their user-friendly functions and immediacy of use, these means are suitable for disclosure at time of event also in terms of economic and financial content, reinforcing the sense of belonging to the company when timeliness is a key factor. For example, Westpac Bank allows stakeholders to follow new disclosures on Twitter. On the other hand, innovative technological means are not used for periodic reporting, for which more formal means are preferred.

Regarding the forth mechanism, disclosure at time of event has to illustrate the impact of exceptional events on IC performance (Harbour, 2009). A comprehensive, transparent and appropriate disclosure has to illustrate the reasons for IC investments' results and interpret these reasons. ICD should show the performance trends both before and after exceptional events. An update on company performance allows the stakeholders to interpret the outcomes after particular events, with particular reference to the influence of IC on the performance results (Itami, 1987), such as the return of IC investments, articulated by different aggregates (lines of productions, divisions, different companies within a group, and other criteria). It allows the company's IC assets to be valorized, presenting the level of the company's credibility with some stakeholders, such as employees, customers and investors, and comparing this value to the connected risks (Corvi, 2000; Lombardi et al., 2015b). A disclosure at time of event may be made through press releases, through which the company communicates a series of events and information in a timely manner. Press releases are suitable for both economic and financial, performance and forecasted information, as this tool is a multi-purpose one. On the other hand, the annual report is not suitable for disclosure at time of event (in contrast with periodic reporting), due to its infrequent publication cycle. For example, Westpac Bank used a press release for communicating its ranking in the global 100 most sustainable corporations in the world. Its press release also included information that may be classified as IC in terms of human capital, relational capital and structural capital (Dumay, 2016).

Regarding the fifth mechanism, the disclosure at time of event may also be made through the company website, thanks to its timeliness and multi-purpose features (Guelfi and Giacosa, 2003). Due to their advantages and disadvantages (described above), they allow the company to promptly transfer a comprehensive depiction of the company on performance matters. However, disclosure at time of event of performance content is not usually disseminated through innovative technological means. Indeed, company performance information and updates require a sufficient space to be well explained, which is not typically compatible with the social media platform.

Regarding the sixth mechanism, companies should publish forecasts of their expected position with regard to particular events in relation to their IC assets (Cacia, 2010; Guidara, 2011). This part of ICD allows the company to present the stakeholders with a potential strategy for the future, the related risks and opportunities, as well as the expected results. The forecasting is extremely important for both the company and the stakeholders: on the one hand, the company can use them to influence the stakeholders' decision-making; on the other hand, they increase the amount of information held by the market. Each ICD has to contain this part, as it increases transparency and, in turn, draws the stakeholders' attention to the company, thus verifying the credibility of its business practices. A disclosure at time of event may be made through press releases, through which the company communicates a series of events and information in a timely manner, and they are a multi-purpose means of communication. On the other hand, the annual report is not suitable for disclosure at time of event (in contrast with periodic reporting), due to its infrequent publication cycle.

Regarding the seventh mechanism, this can be disseminated via the company website, thanks to its timeliness and multi-purpose features (Guelfi and Giacosa, 2003). It allows the company to broadcast a full and timely account of the company's current position with reference to projected figures and scenarios about the business's future.

In summary, it has emerged that disclosure at time of event may be produced and disseminated through seven mechanisms, permitting an effective ICD. That is to say that each of the three types of information - economic and financial information, performance-related information, and forecasts - can be disseminated via traditional (only press releases), and/or digital means, and/or innovative means.

5.2 Periodic reporting

We then studied periodic reporting in relation to the content and the means of the ICD, as we made for the disclosure at time of event. We identified the following mechanisms: i) economic and financial contents disseminated through traditional means; ii) economic and financial contents disseminated through digital means; iii) performance contents disseminated through traditional means; iv) performance contents disseminated through digital means; v) forecasted information disseminated through traditional means; and vi) forecasted information disseminated through digital means. The mechanisms outlined by the conceptual model within periodic reporting are summarized below.

Regarding the first, periodic reporting has to regularly illustrate the economic and financial impacts of IC acquisition and possession (Lev, 2001). To be effective, this information has to be focused on specific aggregates, such as production lines, divisions or geographical areas, in order to provide a more detailed description about each single IC investment. The economic and financial reporting has to be cantered both on quantitative variables and qualitative ones. IC periodic reporting on economic and financial contents may be made through annual reports and press releases. Although this mean is not a modern one and despite its disadvantages (Eccles et al., 2001; Mouritsen et al., 2004), the annual report is a well-established source of ICD on economic and financial topics (Giacosa, 2012) (such as the entity of initial IC investments, and the amount of their depreciation and amortization, articulated by different aggregates), which permits to compare company's IC investments with other companies' within a certain timeframe. Press releases may communicate a series of events on IC investments in a periodic manner, which may have an impact on economic and financial company's situation.

Regarding the second, this could be disseminated via the company website, as online information can be published in a timely fashion and can relay institutional, commercial and economic and financial data (Guelfi and Giacosa, 2003) (such as the entity of initial IC investments, and the amount of their depreciation and amortization, articulated by different aggregates).

Regarding the third, this may be made through annual reports and press releases. Annual reports and press releases are a multi-purpose means of communication and they complement several types of information thanks to their features and functionalities. For this reason, they should be used both for economic and financial contents and for performance ones. Despite its disadvantages emerged from a literature review (Giacosa and Mazzoleni, 2012), the annual report is a well-established source of performance contents ICD (Giacosa, 2012), which permits to compare company's IC with other companies' within a certain timeframe. In particular, annual reports could show the return of IC investments, articulated by different aggregates (such as lines of productions, divisions, different companies within a group). Also press releases may communicate the performance trends of IC investments in a periodic manner, especially when they are affected by a particular event (such as a merger and acquisition deal).

Regarding the forth, this could be via the company website, such as the return of IC investments, articulated by different aggregates. Thanks to its range of features (described above), online publication of periodic performance reports has many advantages, such as the search-ability and personalization of information, and disadvantages to taken into considerations such as data security and the impossibility of taking trace the history of updated information on a given subject.

Regarding the fifth, companies should periodically publish forecasts of their expected position in relation to their IC assets (Cacia, 2010; Guidara, 2011). This part of ICD allows the company to present the stakeholders with a potential strategy for the future, the related risks and opportunities, as well as the expected results. Traditional means (such as annual reports and press releases) are suitable for periodic reporting on forecasted information, as they are a multi-purpose means of communication and they complement several types of information thanks to their features and functionalities.

Regarding the sixth, companies could periodically publish forecasts of their expected position in relation to their IC assets through their website. Thanks to its range of features, advantages and disadvantages (described above), forecasting published online could benefit the company's reputation for transparency and the stakeholders' decision-making process.

In summary, it has emerged that periodic reporting can be produced and disseminated through six mechanisms, each resulting in an effective ICD. That is to say that each of the three types of information - economic and financial, performance-related, and forecasts - can be disseminated via traditional and/or digital means.

Some differences between mechanisms for periodic reporting and that ones for disclosure at time of events emerged. First, innovative technological means (such as social media and other innovative platforms) are not typically used for periodic reporting, due to their informal features. On the contrary, periodic reporting is disseminated through more formal and set means, like those discussed above (traditional and digital means). This aspect differs between periodic reporting and disclosure at time of event. Indeed, innovative technological means are used for making disclosure at time of event in terms of economic and financial information. Second, the annual report is not suitable for disclosure at time of event (in contrast with periodic reporting), due to its infrequent publication cycle.

6. Theoretical implications

The research contributes to the literature on ICD in terms of some theoretical implications. These have been reached by contextualizing ICD into the "sender to receiver" model (Parker et al., 1989; Van Riel, 2000), from the point of view of both the sender (the company) and the receiver (the stakeholders). We can identify two main theoretical implications in particular.

First, our conceptual model emphasizes an "integrated ICD" approach. The integrated approach is due to a strong relationship between the company and its stakeholders, which has an impact on the company's resource supply (Corvi, 2000; Giacosa, 2012). In this context, ICD plays a supportive role in creating a highly integrated relationship between the company and its stakeholders. On one hand, the company needs to produce an effective and comprehensive ICD, which supports the stakeholders' evaluation process. A positive evaluation improves the company's image and credibility. It creates a return in trust and resources from stakeholders (Giacosa, 2012). On the other hand, a negative evaluation can tarnish the company's image and reduce trust between the parties concerned: the supply of resources may become problematic (Figure 3).

[Insert Figure 3 here]

The role of the stakeholders also emerges: their feedback is important, as it can influence their flow of resources into the company. In addition, feedback from stakeholders is useful to the company, as it may shed some light on their attitude and outlook towards the business (Ansari and Euske, 1995). A positive consensus upholds a company's good reputation in the eyes of the stakeholders, while a negative one might mean the company needs to rethink the business model or improve it. For this reason, ICD also brings about a dyadic exchange.

In this context, an effective ICD produces a circularity effect between the sender (the company) and the receivers (the stakeholders). Indeed, from the sender's perspective, ICD allows the company to communicate its business approach, skills and core competencies (Hitt et al., 2001). It encourages the sharing of values and ideas, and a higher level of concordance between all parties. At the same time, it helps to prevent the circulation of hearsay and rumour that can prove detrimental to a company's reputation (Bornemann and Leitner, 2002). In turn, it promotes trust and the keeps the stakeholders on good terms with the company, improving its input provision (Corvi, 2000) (Figure 4).

[Insert Figure 4 here]

In this context, our conceptual model highlights the role of voluntary ICD in how we define some of the mechanisms involved in making an effective ICD and in valorizing feedback mechanisms from stakeholders. Making an effective voluntary integrated ICD on what "was previously secret or unknown" is beneficial to the company, as voluntary ICD strengthens its openness towards stakeholders (Giacosa, 2012). In addition, it allows stakeholders to understand how an organization takes into consideration its ethical, social and environmental impacts (Dumay, 2016), supporting their decision-making process in terms of their input supply. For these reasons, a voluntary ICD increases the benefits of our model both for company and stakeholders (Abeysekera, 2013).

Second, our model is based on some dimensions (the frequency, the content and the means of disclosure) which characterize widespread and general communication models already in use (Corvi, 2000; Giacosa, 2012). For this reason, companies may favour making an ICD, as they are already confident and familiar with these dimensions. Nevertheless, our conceptual model differs from other models focused on non-IC disclosures. Indeed, the model strongly valorizes the feedback mechanisms from stakeholders after the company's ICD. Despite the theory that "disclosing IC leads to greater profitability" has not been empirically proven (Dumay, 2012), the relevance of ICD is valourized, as it allows stakeholders to evaluate the company's attitudes and activities (Giacosa, 2012).

7. Conclusions, managerial implications and limitations

The proposed model shows that an effective ICD may only be achieved through a combination of decisions - in terms of the when, what and how ICD should be communicated - taking into account each individual company's needs and those of the stakeholders. The dimensions on which our conceptual model is based (the frequency, the contents, and the means) are already in use in general communication models (Corvi, 2000; Giacosa, 2012). It means that the principles and concepts of other widespread generic disclosure models may also be applied to the production of an effective voluntary ICD. It may benefit the company to make an effective ICD (Chiucchi and Montemari, 2016; Giacosa and Mazzoleni, 2012).

In particular, periodic reporting and disclosure at time of event are characterized by different combinations of appropriate contents and means of dissemination, which the company has to respect in order to make an effective ICD that is aligned to the stakeholders' needs (Cacia, 2010). This combination allows us to identify and discuss six specific mechanisms for periodic reporting, which differ from seven ones for disclosures at time of event. Following the above mechanisms brings about a comprehensive, transparent and appropriate ICD.

In this context, the proposed model emphasizes the role of voluntary ICD within the company's input supply process (Abeysekera, 2013; Leftwich, 1980). Indeed, voluntary ICD may increase the richness and completeness of ICD (Friedman and Miles, 2001), demonstrating how open and transparent the company is towards its stakeholders (Giacosa, 2012). It also supports stakeholders' decision-making in terms of input supply, which is advantageous for the company as it encourages stakeholder loyalty and consensus (Gigler and Hemmer, 2001; Watts and Zimmerman, 1986).

The model we proposed has two main managerial implications, which represent some practical potentials that improve the originality and significance of our research. They can be identified in internal and external contexts of observation. In an internal context, this relates to the production of an effective ICD when considered as "one-way information", from the company to the stakeholders. The model presents some different mechanisms that management may adopt in order to achieve an effective ICD, both for periodic reporting and a disclosure at time of event. In this context, the company plays a leading role in the production of an effective ICD, as the mechanisms highlighted in this study have a great relevance in obtaining a transparent and useful ICD. In an external context, this relates to the interaction between the company and its stakeholders, within a dyadic exchange. In fact, our model is original as it emphasizes the role of stakeholders, as their support and loyalty has a positive influence on supply systems. For this reason, the model urges the management to take into consideration the stakeholders' needs in terms of ICD, producing a transparent and appropriate disclosure. In conclusion, the management should produce an ICD that considers both the stakeholders' needs and feedback (Mouritsen et al., 2003; Dumay and Gutrie, 2007). Stakeholders have to be involved in an integrated ICD approach, in which the supply of resources also depends on the completeness and effectiveness of ICD: it favours harmonious and unified actions aimed at developing/preserving a constructive relationship with them, as part of the business strategy. In this context, we agree with Dumay (2016), who stated that the company needs to abandon IC reporting, while concentrating on how to disclose what was previously secret or unknown. It may improve the stakeholders' understanding of how a company approaches ethical, social and environmental issues.

As with all studies, this paper has its limitations that also suggest future lines of enquiry, concerning different points of view regarding the model's design, its recipients, and validity. Regarding the first, it does not provide a weighting for each dimension, according to their role in making an effective ICD. Indeed, the measurement of the effectiveness of our conceptual model doesn't fit to the purpose of our research. Future research could measure the contribution of each of the three dimensions in an effective ICD. Another limitation is linked to the frequency of ICD, as our model does not define high, medium and low frequency disclosures, only periodic reporting and disclosure at time of event. Future research should make this distinction, as each level of frequency would allow us to solve different informational needs, and would require specific mechanisms for an effective ICD. With regard to the model's recipients, we decided to focus on the listed companies, as they interact with a large variety of stakeholders. In this regard, first, we did not distinguish listed companies according to their size, age or economic sectors, which could impact both on the needs of the company and their stakeholders (Aboody and Lev, 2000; Brüggen et al., 2009). Second, our model does not distinguish listed and non-listed companies, and as these are both characterized by different stakeholders' needs, they will likely be satisfied via different means. Each company's particularities and their individual stakeholder's needs may determine which ICD mechanisms to follow. For these reasons, future research could improve the proposed model by distinguishing, First, between different types of listed companies and, second, between listed and non-listed companies. Lastly, in terms of the model's validity, it has not been tested empirically, as the purpose of the present research is to create a conceptual model for the production of an effective voluntary external ICD and for a valorisation of both the company's and the stakeholders' role. Empirical testing of the model will be the purpose of future research. Indeed, we think it will be important to carry out an empirical analysis, taking multiple case studies or examples from real companies. This would allow us to discuss and analyze some evidence of its use and verify the validity of our model. In particular, it could be interesting to test the model with different companies, such as listed and non-listed ones, and compare its use and outcomes in a variety of economic sectors, in companies of varying size and age.

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