

FROM INFORMATION TRANSFER TO KNOWLEDGE SHARING IN CORPORATE GOVERNANCE: THE CHALLENGING ROLE OF BLOCKCHAIN TECHNOLOGY

Sergio Barile ^{*}, Francesco Caputo ^{**}, Pietro Vito ^{*}

^{*} University of Rome 'La Sapienza', Italy

^{**} University of Salerno, Italy



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Abstract

The increasing market turbulence is recalling the attention of both researchers and practitioners interested in business dynamics on the need for developing conceptual and interpretative frameworks able to face the emerging challenges related to the on-going market changes. As a prominent domain of interest in business studies, corporate governance should rethink itself to overcome consolidated transactional approaches with the aim of ensuring companies' survival thanks to the collaboration among all the actors involved in social and economic paths. Accordingly, the paper proposes conceptual reflections about the ways in which corporate governance could overcome traditional issues related to information asymmetry and agency problems and shift from an information transfer-based view to a knowledge-sharing approach thanks to the contribution provided by the information technologies. The Blockchain technology is used as an example for building a conceptual model able to explain the potential advantages of the proposed change in perspective for corporate governance.

1. INTRODUCTION

In an interesting paper published by Merlino and Sprögeb (2017) wrote that "digital technology is disrupting traditional operations and now every business is a digital business" (p. 309). In the same direction, several researchers and practitioners interested in multiple research streams have underlined the disruptive role of technologies, underlining that they are radically changing the relationships among social and economic actors (Cagnin et al., 2013), the processes through which value is created and distributed along the supply chain (Chesbrough & Rosenbloom, 2002; Scuotto et al., 2017), and the paths through which business idea emerge and are managed over time (Latzter, 2009).

The key role of technologies for explaining emerging social and economic dynamics is undoubted (Williams & Edge, 1996) and multiple contributions have been provided with reference to the role of technologies in increasing the efficiency of economic processes (Adner & Kapoor, 2010), in reducing the costs of administrative activities (Clemons et al., 1993), and in supporting the emergence of new business area (Grimaldi & Grandi, 2005) and interaction domains (Kaptelinin & Nardi, 2006).

Despite the increasing attention rooted in the domain of technologies for management, managerial studies seem to be strongly influenced by an instrumental view of technologies as simple assets on which act for increasing efficiency of consolidated business models (Amendola et al., 2018). Opposed to this view, economic dynamics are showing a different scenario in which technologies are contributing to the definition of new business models supporting the emergence of different paths and processes to create value through alternative ways.

Recognizing the challenging dynamics that new technologies are promoting both in social and economic environments, managerial and organizational researchers are recalled in reflecting on the multiple roles that technologies can have in planning and governing economic activities (Caputo et al., 2016; Del Giudice et al., 2016). In such direction, the paper adopts the interpretative lens provided by systems thinking (Emery, 1981; Beer, 1984; Espejo, 1990; Golinelli, 2010; Barile, 2013; Barile et al., 2016) and builds upon consolidated studies about knowledge management (Wiig, 1993; Liebowitz, 1999; Alavi & Leidner, 2001; Carayannis & Campbell, 2006; Del Giudice, 2016) with the aim of investigating the following research question: Are new technologies potentially able to support a change in perspective to the ways in which information is developed, managed, and transferred in corporate governance practices?

Accordingly, the role of new technologies in corporate governance practices is analysed from a theoretical point of view and the attention is focused on the emerging domain of Blockchain technologies as an example for depicting a conceptual model able to support the shift from information transfer to knowledge sharing in corporate governance.

In such a line, the rest of the paper is structured as follows. In Section 2 few key concepts related to the domains of corporate governance, knowledge management, and systems thinking are enucleated to build the framework for reflection. In Section 3 a preliminary conceptual model for explaining the role of technologies in supporting the shift from information transfer to knowledge sharing in corporate governance is proposed and analysed. In Section 4 the main aspects of the proposed conceptual model are analysed in the light of the conceptual background and its implications are discussed from both theoretical and practical points of view. Finally, in Section 5 the limitations of the research are underlined, few preliminary conclusions are proposed, and a path for the future development of the research is traced.

2. THEORETICAL BACKGROUND

2.1. Corporate governance: Key elements and consolidated view about agency problem

According to La Porta et al. (2000): "Corporate governance is, to a large extent, a set of mechanisms through which outside investors protect themselves against expropriation by the insiders" (p. 4). In the same perspective, John and Senbet (1998) state that "corporate governance is a means by which various stakeholders exert control over a corporation by exercising certain rights as established in the existing legal and regulatory frameworks as well as corporate by laws" (p. 374) while Aguilera and Jackson (2003) wrote that "corporate governance is ultimately the outcome of interactions among multiple stakeholders" (p. 451).

In line to all these definitions, corporate governance is commonly recognized as a set of mechanisms, instruments, and approaches useful for managing the differences in perspectives among multiple categories of actors commonly classified in internal and external actors (Freeman & Reed, 1983; Hart, 1995).

From a general point of view, debates and interest in corporate governance are related to the relationship between ownership and control (Williamson, 2002; Esposito De Falco, 2016; Cucari et al., 2018). On the point, Fama and Jensen (1983b) have well clarified that the survival of organization is strongly related to the possibility and ability to identify the differences in perspectives and finalities between ownership and control and to define instruments for reducing the consequences of the so-called agency problems and they have outlined that "agency problems arise because contracts are not costless written and enforced" (Fama & Jensen, 1983a, p. 327).

As a consequence of this general framework, a large part of the study related to corporate governance can be classified into three main categories: 1) studies interested in defining condition of internal functioning of corporate governance focusing the attention on the

composition of board of direction, on the processes for decisions, and on the assessment mechanisms (De Andres et al., 2005); 2) studies focused on the external pressures on corporate governance in terms of instances and expectations from the multiple actors interested in the companies' actions and decisions (Clarke, 2004; Khan et al., 2013); and 3) studies direct to explain the consequences of internal processes for corporate governance on external environment and the consequences of environmental processes on corporate governance practices in terms of companies' performance (Burton, 2000).

This simple (and more generic) classification aims at underling that a large part of the theoretical and empirical frameworks rooted in the studies on corporate governance are influenced by: 1) the ways in which information are used for defending internal or external processes interested by corporate governance practices (then on the companies' and societies' approaches to knowledge management); and 2) the divergence between aims, perspectives, and behaviours among actors inside and outside the company (this point will be better explained using the internal-external dichotomy proposed by systems thinking).

2.2. Knowledge management: Overcoming information asymmetry for corporate governance shifting from information to knowledge

Nowadays, knowledge management is considered one of the largest research domains in business studies with contributions daily provided by multiple research streams (Liebowitz, 1999; Alavi & Leidner, 2001; Carayannis & Campbell, 2006). Initially, knowledge management has been simply considered as a new label for document management (Tuomi, 1999) but in few years both researchers and practitioners have recognized that it is strictly related to a new vision in approaching, managing, and using information in social and economic configurations as a way for improving the performances acting through a better understanding among the involved actors.

Contributions rooted in knowledge management have widely analysed the role of information in ensuring the survival of organizations (Afiouni, 2007), the need for overcoming a transactional approach in information management (Sawhney & Prandelli, 2000; Peña, 2002), and the relevant opportunities offered by new technologies in supporting information sharing and knowledge building (Blakiston, 2011). Among the multiple on-going debates within the domain of knowledge management, recent contributions are recalling the attention on the multiple challenges for business management related to one of the potential antecedents for agency problem: the information asymmetry (Akerlof, 1978; Caputo et al., 2016).

According to Akerlof (1978), information asymmetry recurs every time that the actors involved in a process are endowed by different levels of information about the core of the process (e.g. exchanged good, provided service, technical issues etc.). As a consequence of this difference in the level of information, actors with a high level of

information could adopt speculative behaviours (Hung et al., 2011). Such a configuration reduces the opportunities for information sharing with several negative consequences for the management of social and economic configurations in the light of knowledge management (Caputo & Evangelista, 2018).

Recognizing that the general part of the framework on which studies rooted in knowledge management are built is directed to identify conditions by which information can be efficiently used for supporting the emergence of new and sharable knowledge thanks to increasing social and economic actors' ability for producing value, the information asymmetry can be considered as a relevant issue to face along the process for building knowledge-based configurations (Del Giudice et al., 2017). This issue is strongly related to the existence of a competitive orientation in human processes that push all social and economic configurations in considering information as resources able to produce a competitive advantage (Nayyar, 1990). As a consequence of this condition, social and economic actors approach information in the light of transactional approach without perceiving the potential advantages related to the adoption of a collaborative approach based on the sharing of available resources (Carayannis et al., 2017). For supporting a possible shift from a transactional to a collaborative approach is then required a change in perspective-shifting the attention from the information itself to the knowledge as a complex of elements and conditions under which actors build, use, and transfer their information. Accordingly, the next sub-section will briefly report a few key concepts provided by systems thinking and potentially able to show on which levels act for building a path from information transfer to knowledge sharing.

2.3. Systems thinking: Towards a renovate holistic view for corporate governance

For a long time, managerial studies have been inspired by a strong reductionist view (Barile et al., 2017). Accordingly, business models were developed in the light of the cause-effect principle (Heise, 1975) and they were oriented by the so-called forecasting approach (Newbold & Bos, 1994).

In the last few decades, the increasing variety and variability of social and economic dynamics have progressively shown the useless of consolidated reductionist view in supporting researchers and managers in facing the challenges related to market turbulence (Daña et al., 2018). As a consequence, multiple research streams rooted in business domains have tried to extend their perspective in order to define frameworks able to better support understanding and management of on-going dynamics (Barile & Saviano, 2010).

In such a perspective, the wide conceptual framework related to systems thinking has been proposed as a possible way for overcoming the weaknesses of reductionist view in business and social studies (Basile & Caputo, 2017). Formulated in the research domains of nature and biology

studies (Von Bertalanffy, 1968), in the middle of XX century it has been applied in social science thanks to the contribution of Stafford Beer with the proposition of the Viable Systems Model as interpretative framework able to explain connections among the parts of an organized entity (Beer, 1984; Espejo, 1990), thanks to the Systems Dynamics as a methodology able to explain components' reactions and changes as consequence of internal and external connections (Forrester, 1993; 1994), and thanks to the research stream interested in the so-called Complex Adaptive Systems as organized entities able to quickly adapt themselves to external changes acting on the organization of internal and external components (Lansing, 2003; Miller & Page, 2009).

Thanks to all these contributions among the others, the systems thinking has rapidly become a prominent conceptual framework for business and social studies. Unfortunately, the large part of contributions rooted in systems thinking for social sciences for a long time has been considered as the result of a fragmented research path with several negative consequences for the definition of a shared approach to systems thinking in social domains (Barile et al., 2016).

With the aim of bridging this gap in knowledge, an Italian group of researchers has formalized the viable systems approach as a meta-level model for analysing and managing social and economic configurations (Golinelli, 2010; Barile, 2013). Systematizing previous contributions inspired by systems thinking, the viable systems approach has called the attention on key dimensions of systems governance and functioning supporting the shift of managerial studies from a structural to a dynamic view (Barile et al., 2012a, 2012b; Golinelli et al., 2012; Barile et al., 2015; Saviano et al., 2018).

Among the others key concepts, the viable systems approach has underlined that traditional internal-external dichotomy is an ostensible issue for business studies because it emerges as a consequence of a reductionist and structural representation of business phenomenon (Barile & Saviano, 2011). When the attention is focused on the functioning of a business phenomenon, it is not possible to identify a boundary for distinguishing internal and external components and all the elements included in the perspective of decision-maker should be considered as (effective or potential) components of the system.

Again, thanks to the Information Variety Model (Barile, 2009; Calabrese et al., 2011; Barile et al., 2014) the viable systems approach has highlighted that each viable system can be analysed in term of knowledge identity as composition of information units, total amount of data endowed by a system, interpretation schemes, the way in which data are organized by the system, and categorical values, the complex of strong beliefs able to influence system's decisions and behaviours over the time. Thanks to the information variety model, it is possible to understand that systems' interactions are not only influenced by the total amount of data individually endowed (information units) but they are also affected by the ways in which these data are organized by each

system (interpretation schemes) and by the ability and willingness of systems to interact over the time (categorical values).

3. CONCEPTUAL MODEL AND THEORETICAL DEVELOPMENT

As underlined in the Introduction of this paper, for a long time the challenging domain of corporate governance has been analysed in the light of a reductionist view as a way for identifying mechanisms and instruments for managing the relationships between ownership and control and between internal and external components. Thanks to the key concepts derived from the studies rooted in Knowledge management and Systems thinking, it is possible to highlight that this consolidated approach is no more able to support researchers and practitioners in facing the emerging challenges of market turbulence.

As a consequence of the changes in business models, organization structures, and social dynamics corporate governance cannot be still considered the control room for organized entities able to survive over the time thanks to the building of strong boundaries able to defend internal competitive advantages against external pressures. A renovate view for corporate governance is required for catching the multiple opportunities offered by the emerging society in which all the components are strongly interconnected, and individual actors are not able to build alone the conditions for a long-time survival.

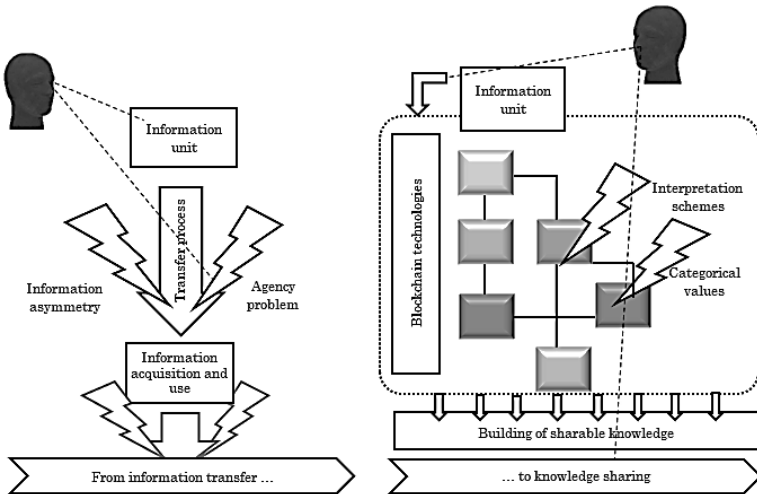
Recognizing the validity of consolidated studies about corporate governance for defining the structure through which an organized entity is directed, it is needed to overcome the static representation of business phenomenon with the aim of identifying possible ways for resolving the old issues of agency problem and information asymmetry in the knowledge era. Accordingly, corporate governance should give up the view based on the competitive advantages obtained through the defence of available information to embrace a collaborative view in which information is not simply transferred but they are used to build a sharable knowledge through which all the actors can achieve individual aims ensuring at the same time a production of value for the system.

As can be easily understood, this change in perspective requires to overcome the consolidated view based on the internal-external dichotomy and to extend the perspective from the information itself to the complex of elements that define the knowledge identity as defined by the Information Variety Model. It is needed to identify instruments able to support the information sharing offering the opportunity of maintaining control about the use of information in the light of transparency to avoid speculative behaviours.

In such a perspective, interesting stimuli for reflections are offered by the Blockchain as "open, Distributed Ledger that can record transactions between two parties efficiently and in a verifiable and permanent way" (Iansiti & Lakhani, 2017, p. 4). Thanks to the Blockchain technologies it is possible for the corporate governance building paths to transfer information maintaining the control about the

value and use of information (De Falco et al., 2019). Blockchain technologies offer to corporate governance the opportunity to overcome all the cognitive issues related to the ways in which information are organized (Interpretation schemes) and to the differences in perspective about the use of transferred information (Categorical value). In such a direction, as represented in the following Figure 1, corporate governance can overcome the traditional issues of information asymmetry and agency problem building a shared and sharable knowledgeable to collect contributions from all the actors 'involved in' and 'interested to' a specific process.

Figure 1. From information transfer to knowledge sharing for corporate governance thanks to the Blockchain technology



Source: Authors' elaboration, www.asvsa.org

Figure 1 aims at summarizing the proposed change in perspective about the role of corporate governance in managing information flows thanks to the support provided by the Blockchain technologies. Specifically, the figure shows how in the consolidated approach (the left side of Figure 1) corporate governance is oriented to transfer as less information as possible because it is not able to control the ways in which information are used as a consequence of discussed issues related to the information asymmetry and agency problem. In this consolidated view, corporate governance can only try to defend available information with the aim of using them as a source for competitive advantages both with reference to the management of internal processes and with reference to the external pressures.

In opposition to this representation, the proposed change in perspective (the right side of Figure 1) shows that, thanks to the Blockchain technologies, corporate governance can build a virtuous path for information sharing in which the transparency ensured with reference to the ways in which information are used and organized offer the opportunity to overcome the issues related to information asymmetry and agency problems. Actors involved in the Blockchain have the opportunity for easily understanding willingness and orientation of all the components and then they can build in more easy way conditions for alignment. As a result of this path, a sharable knowledge is defined, and all involved actors can achieve individual aims contributing at the same time to better governance for the organized entities.

4. DISCUSSIONS AND IMPLICATIONS

Among the multiple topics able to attract the interest of researchers and practitioners in the domain of corporate governance, the challenging dynamics related to companies' approach to information management seem to represent an interesting field within which build new conceptual approaches thanks to the support provided by the information technologies (Caputo & Wallezky, 2017; Polese et al., 2018).

As underlined in the paper, as a consequence of increasing market turbulence traditional approaches to corporate governance are showing increasing incapability in supporting the definition of paths able to ensure companies' survival over the time. Traditional approaches based on competitive and transactional view directed at reducing the conflicts between ownership and management and between internal and external actors are no more able to ensure companies' survival.

New paradigms are required to identify more effective approaches of corporate governance to information management. In such direction, information technologies could represent the key drivers for ensuring the shift from a consolidated reductionist view to a dynamic representation of organized entities within which knowledge is co-build thanks to the active, transparent, and productive contribution of each involved actor. Accordingly, Blockchain technologies represent only a small example of the potential role that information technologies could have in ensuring the definition of participatory processes in which the internal-external dichotomy is outmoded and the information asymmetry and agency problem issues disappear as a consequence of the possibility for the actors to have a whole view of the processes through which information concur to the definition of competitive advantages thanks to the combination of individual contributions.

From a managerial point of view, the logic on which Blockchain technologies are based opens to multiple theoretical and practical implications for corporate governance. Specifically, it clearly emerges the possibility for overcoming a view of corporate governance as control room not related to the companies' dynamics and only oriented to supervise companies' activities for defining guidelines and paths. Thanks to the

proposed change in perspective, corporate governance recovers its centrality in business processes and dynamics thanks to the collaboration with the multiple actors endowed by the relevant information to quickly adapt business orientation and strategies to social and economic changes (Esposito De Falco et al., 2017). At the same time, the proposed change in perspective underlines the need for defining new instruments for evaluating the performance of corporate governance in the light of its ability to build collaborative environment within which reciprocal understanding and cognitive alignment among the involved actors represent a necessary pre-condition for ensuring system's survival over the time.

5. CONCLUSIONS, LIMITATIONS, AND FUTURE DIRECTIONS FOR RESEARCH

The domain of corporate governance is one of the most discussed in managerial studies and over the time multiple interesting advancements in knowledge have been provided with reference to the ways in which it should be structured (De Andres et al., 2005), to the ways for defining control mechanism (Clarke, 2004), and to the costs related to the potential conflicts between ownership and management and between internal and external actors (Burton, 2000) among the others.

All these contributions have defined a wide research domain in which the attention is strongly related to the structural representation of business phenomenon and to the ways in which it is possible to define structures able to reduce the information asymmetry and agency problem issues in the light of internal-external dichotomy. Despite the utility of this approach for depicting business phenomenon, it seems to be no more able to provide exhaustive support in understanding and managing business dynamics (Hermalin, 2005). The increasing market turbulence is requiring the definition of a new interpretative framework able to describe not only the structure of organized entities but also to support the interpretation of its changes over the time.

With the aim of providing a contribution to the challenging domain of corporate governance in the light of the pressures related to the emerging market turbulence, the paper builds upon the consolidated view of corporate governance for extending it in the light of key concepts provided by knowledge management analysed through the interpretative framework of systems thinking. The result is the definition of a conceptual model that underlines the need for corporate governance to shift from an information transfer-based approach to a knowledge-sharing view. At the same time, the proposed conceptual model also proposes a practical path through which realize the expected change in perspective thanks to the contribution provided by information technology and specifically by the Blockchain technology as a way to define information infrastructures able to support the collaboration among all the involved actors ensuring the control on the whole process related to information acquisition, modification, and use.

Research path and conceptual development are defined in the domain of theoretical contributions and for this reason reflections herein should be validated through case studies able to show the effect of Blockchain technologies on companies' approach to information management and on corporate governance performance. In such direction, the next step of the research requires to define possible evaluation instruments for measuring corporate governance willingness and ability in using the opportunities offered by information technologies to overcome consolidate issues adopting innovative paths for knowledge building and sharing.

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