

Addressing Supply chain integration from the perspective of social capital theory An aggregated theoretical framework

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Abstract

This article reviews the existing supply chain integration (SCI) literature with the aim of bridging the gap on some constructs qualified as unclear by different scholars (Flynn et al., 2010; Zhao et al., 2011; Schoenherr and Swink, 2012; Gimenez et al., 2012). We intend to precisely define the concept of SCI with consideration to emergent debates upon its controversial foundations, forms, breadth & degrees of integration. The utilization of social capital as a grounding theory opens up discussion on the potential impact that can have social capital dimensions naming, as defined in the framework of Nahapiet & Ghoshal (1998), structural, relational and cognitive dimensions on fostering the achievement of SCI. This required us viewing SCI as a social dilemma (McCarter et Northcraft, 2007; Fawcett et al., 2008; Agarwal, Croson, et Mahoney, 2010; McCarter, Mahoney and Northcraft, 2009, 2011; Zhao, 2011) responding to an inter and intra-organizational socio-psychological dynamic which governs the entire SC and that has an impact, among others, on the working mechanisms of collective actions within a SCI projects. In fact our ultimate goal is to support companies willing to invest in SCI activities to better address this type of project through understanding its components, formats and also resulting dynamics of social capital dimensions to be mindful to. Given the number of actors involved in a supply chain and the levels and breadth of integration to be considered we conclude that achieving full integration is unrealistic and that companies are struggling in finding a standard route to improve their predicament integrative journey. Another outcome lies on the importance of addressing carefully the behavioral social dynamics which governs the entire SC in order to tackle properly such an integrative of multiple nodes of the chain.

We close up the article with a research agenda founded on a potential theoretical model to be investigated empirically in order to verify the potential impact between the disseminated variables. It is thus recommended for future studies to dissect this concept with the lenses of social capital theory, analyze potential interrelationships between social capital dimensions and SCI to alleviate the failure risks of such projects.

Keywords: Supply Chain, Supply Chain Integration, Social Capital Dimensions

JEL Classification: J24, O15

Paper type: Theoretical research

1. Introduction

Supply chain integration is a topic receiving considerable attention from the researchers and practitioners. The growing interest for this prevalent research topic is argued by the motivation of the companies to reach a number of advantages centered around enhancing supply chain performance and accentuated by the pressure released by the global competition - calling the companies to be more and more competitive (Krause et al., 2007; Lii and Kuo, 2016). Also, with consideration to rapidly evolving business and technological changes not only perplexing the maintenance of internal competitive advantages, it prompts the scholars and leaders to look beyond traditional the firm's boundaries (Wang et al., 2018).

Academics have sank a lot of ink into verifying the direct and indirect link between implementing SCI strategies and reaching the promised grown level of benefits such as, but not limited to, reduction of logistics and inventory costs , improving operational performance, reaching a larger market share and achieving a better responsiveness to customers demand (Sambasivan et al., 2009, Li et al., 2006, Flynn et al., 2010) . The outcomes of the studies exploring the cause and effect link between SCI and performance were marked by a lack of consistency that finds its source in the way the concept SCI itself has been defined.

In fact there is a lack of universal agreement on this concept foundations (Fabbe-Costes and Jahre, 2008) resulting in a wide spread of definitions based on different constructs of the SCI (levels/breadths and components). Social context as well as studied sectors are also substantial factors to considered when analyzing the results of any SCI study, leaving the door open for more discussions upon the la veracity of the link between SCI and performance. Notwithstanding, we built our article on the premise that there is a wide acceptance in the literature that SCI and performance go hand in hand (Bagchi and Chun Ha, 2005; Zailani and Rajagopal, 2005; Cousins and Menguc, 2006; Kim, 2006; Van der Vaart and Van Donk, 2005; Flynn et al., 2010). Besides, in 2019 there was 28 studies that have observed the relationship between SCI and its impact of performance (Nadir M.H.et al. 2021).

Therefore, our aim is rather to help organization capture the benefits of synergy deriving from intra- and inter-organizational collaborations by identifying the enabling factors of SCI. From this perspective, we are considering social capital as the grounding theory for defining SC & SCI and thus we will be highlighting the importance of addressing and managing properly SC social dimensions. The process can concern either stakeholders working in the same firm when it comes to internal SCI or actors outsides of the focal firms either from supplier(s) or customer(s) side when it comes to external SCI , or both.

We are also viewing SCI as a social dilemma (McCarter et Northcraft, 2007;Fawcett et al., 2008 ; Agarwal, Croson, et Mahoney, 2010; McCarter, Mahoney and Northcraft, 2009, 2011 ; Zhao, 2011), subject to significant social dynamics that requires to be identified, understood to be better grasped and managed during any SCI project. In fact, social capital is a complex concept referring to social embeddedness of a company in a social network (Granovetter, 1985) and representing the ability of actors to obtain benefits by virtue of membership in various social structures (Portes, 1998). These benefits include, among others, privileged access to knowledge and information (Inkpen and Tsang, 2005). SCI, as a collective strategical approach can be impacted by the nature of relationships embedded in the network with a particular point of attention when the interest between the stakeholders, even when they are from the same company, are conflicting on short-term but rather into a win-win equation on the long term – and this is where lies the complexity of the integration process.

Despite the abundance of research on SCI it appears that companies are still struggling in finding a standard route to pave the way to seamless integration and in turn access all the benefits

expected from it. The aim of the article is also to support the companies by identify enabling factors of this process hence our interest in analyzing it from social capital theory lens. We intend through our redaction to shed light on the foundation of SCM and SCI from social capital perspective: an extensive review has been carried out upon this concept with consideration of the positions and views of the leading scholars (sometimes opposition) in this domain with a focus on defining its constructs naming its different components and levels. We close up the article with a proposal of an empirical modal that requires a verification on the field and needs to be enriched with contextual variables. Our literature review encompass signals pin-pointing to consider knowledge based view in the mediation between SCI and social capital dimension, a lead that can be considered for future theoretical and empirical studies.

2. Literature review

2.1 Supply chain management as a social dilemma

The genesis of SCM was derived from the founding works of Forrester (1961) on industrial dynamics (Croom et al., 2000; Arshinder et al., 2008) but it's only at the dawn of the 90's that it founds a place in the literature sphere as a scholar realm (Ellram and Carr, 1994; de Treville & al., 2004; Cousins, 2005; Arshinder & al., 2008)

In fact, following the research of Martin Christopher in the 90s, a rise of the number of works in this domain has been noticed: SCM has become a discipline attracting the interest of researchers looking for anchors allowing better understanding of the concept constructs and potential areas of performance & competitiveness enhancements for the companies. Moreover, large multinationals such as Toyota, GM, P&G, Peugeot and Walmart have shifted their strategy from flow optimization & rationalization approach, centered on firms competing with other firms, to collaborative approach based on building alliances and supply chains (Zouaghi & al., 2009). It was a smart move to endorse the new evolving kind of competition between groups, networks and chains of companies.

Despite the fact that the concept has the worth of being one of the central themes in contemporary management (New & Westbrook, 2004) and that is perceived a one of the fundamental functions responsible for value creation and spanning organizational boundaries (Gölgeci, Karakas, & Tatoglu, 2019) when it comes to its definition SCM is a nebulous term characterized by a lack of universal agreement (Zouaghi, 2013 ; Stock. & al., 2010): due to its multidimensional and polysemic character it has been complicated to get a consensus within the academic world on a single definition. Nevertheless the term supply chain on its own is defined more harmoniously by the scholars as they agree that it's a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer (Mentzer & Al, 2001). As per the work developed by by Harrison and Van Hoeck (2005, p:6), we refer to the purchasing side from tier 1 suppliers for the focal firm as "upstream" on the buy side while "downstream" on the sell side stands for the physical distribution of products to tier 1 customer. In fact tier 1 customers and tier 1 suppliers are dealing respectively with tier 2 customers and suppliers. The same author has defined SCM "as the end to end management of the networks as a whole, and of the relationships between the various links".

Although the lack of consensus on its etymology and definition, we retain in our article the founding works of Mentzer & Al (2001) defining SCM as " the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole."

Considering this definition SCM can be broached as a collective strategy requiring planning, coordination & control of information, physical and financial flows between all the nodes parts of the same chain including the client (Camman, 2010). In this optic, we can address SCM as a social system with an operating mode assimilated to a social practice characterized by a potential

paradox between the individual interest of a partner and the collective interest of the other partners part of the chain (McCarter and Northcradt, 2007).

In other words, SCM can be seen a collective process requiring the cooperation of the different stakeholders part of the chain with the ultimate goal of enhancing the global performance of the full chain and in turn each of its members. The ultimate goal of SCM has been and still up today centered on developing new capabilities that will allow for unlocking the benefits embedded within a competitive advantage that the competitors doesn't enjoy (Asthana 2018). This process is perceived by some author's as a social dilemma (Fawcett & al. 2008) characterized by instability due to potential opportunistic behavior of each partner. Social dilemma in the broad sense is defined as "a situation in which there is a strategy which associates an individual with a reward, in at least a configuration of strategic choice, which has a negative impact on the interests of other individuals concerned by the choice of that particular strategy" (Liebrand, 1983, p.124)

In fact, a social dilemma exists when (1) an individual must choose between doing what is in his best interest or doing what is in the best interest of his group and (2) if all individuals choose to do what is in their own interests, the result will not be for the benefit of anyone in the group (Dawes, 1980; Liebrand, 1983). When extrapolated to SCM context, it means that we can encounter a social dilemma situation when a company elect a strategy leveraging on individual immediate and more important benefits instead of selecting a strategy with collective benefits for all the partners (Liebrand, 1985). As a consequence, when this opportunistic behavior is adopted despite the collective interest, SCM fails (Fawcett & al., 2008) as well as the whole purpose of SCM which is according to Asthana (2018) is to create customer value.

We note that the prominent proliferation of new technologies in the arena, among other artificial intelligence, blockchains and bigdata, has changed the way SC are managed, how data is captured, stored, analyzed and translated into operational or strategical decisions, pushing some authors to declare that SCM as company's core operations is dead (Lyll et al., 2018). The observed influence of market and technological changes did not allow to overcome the need for aligning functional and organizational boundaries between the firms and bring under control the social interactions between the stakeholders (Sanders 2016; Davenport and Bean 2018).

In our paper, we will cover SCM from social dynamic perspective/angle as we believe that it has a great impact on the mutual cooperation of the partners within a SC and the success of SC Integration – that we will introduce in the next chapter.

2.2 Defining supply chain integration

As introduced in the previous chapter beyond economic, organizational and technological considerations, we built our article on the premise that SCM is responding to an intra and inter-organizational socio psychological dynamic which governs the entire SC and that has an impact, among others, on the working mechanisms of collective actions within a SCI project.

From this perspective, the integration between the different stakeholders parts of a SC and even internally within a focal firm is at the center of the SCM, hence our interest in studying the constructs, the underlying mechanisms of SCI deployment and its enabling factors. But first, let's be more explicit about exactly what is meant by the word supply chain integration (SCI), frequently reported as the key characteristic of SCM (Wang et al., 2018), for which several definitions have been proposed especially that the concept has a large body of research in SC literature (Gimenez et al., 2012; Schoenherr and Swink, 2012; Zhang and Huo, 2013)

Integration has been defined as “uniting, combining or incorporation of two or more functions within a company or two or more processes between two or more companies into a compatible or unified process in an operational sense” (Keebler and Durstche, 2000, p91). In fact it can concern the process(es) inside a single company or/and different firms that will work together as one entity. When applied to SC context, we can make the difference between two elements forming the constructs of SCI: integration levels and integration components. Integration level indicate

whether integration activities are internal or external or both while integration components refers to the elements included in the integrated SC. We note that when we talk about external integration it can be toward the client and or toward the supplier.

Below is a table summarizing a selection of definition for this concept from the literature review:

Table 1: SCI definition

Authors	Definitions
Flynn et al. (2010, p59)	“The degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organization processes. The goal is to achieve effective and efficient flow of products and services, information, money and decisions, to provide a maximum value to customer at low cost and high speed”.
Kwon and Suh (2005, p26)	“A strategic tool, which attempts to minimize the operating costs and thereby enhancing values for the stakeholders (customers and shareholders) by linking all participating players throughout the system, from supplier’s suppliers to the customers”
Zhao et al. (2011, p18)	“The degree to which an organization strategically collaborates with its supply chain partners and manages intra and inter-organization processes to achieve effective and efficient flows of products, services, information, money and decisions, with the objective of providing maximum value to its customers”
Chen et al. (2009b, p66)	“The management of various sets of activities that aims at seamlessly linking relevant business processes within and across firms and eliminating duplicate or unnecessary parts of the processes for the purpose of building a better-functioning supply chain”.
Wong et al. (2011, p605)	“The strategic collaboration of both intra-organizational and inter-organizational processes”.

Source: Ismail Abushaikh, IA. (2014)adapted by author

We highlight the observation made by Fabbe-Costes and Jahre (2008) claiming that there is tough a lack of a universal agreement on the concept definition - categorized as fragmented, a statement underpinned by other authors (Flynn et al., 2010; Wong et al., 2011) who pin pointed a lack of agreement on the level and components of integration in the literature. Considering both declarations, this situation led researchers to flexibly define the concept and its components and thus produce varying and sometimes contradictory empirical results (Turkulainen & al., 2012) with regards to the expected benefits from such project. Nevertheless we retain in this articles some definitions that we consider as the most complete and coherent with our theoretical grounding based on social capital theory and also that confirm that SCI is based on close collaboration (internally and externally with suppliers but also with customers):

Flynn & al. (2010, p59) define SCI as “the degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organization processes. The goal is to achieve effective and efficient flow of products and services, information, money and decisions, to provide a maximum value to customer at low cost and high speed”. Also, for the researchers Kim (2006) ; Lau et al. (2010); Villena et al. (2009); Wu & al. (2004) SCI is an organizational process that allow in fine reaching performance improvement of all the stakeholders in the supply chain and this through integration of internal functional units as well as the external partners involved part of the SC - naming the suppliers, transport companies and final clients. These definitions highlight that a key ingredient to a fructuous and integrated supply chain is the development and maintenance of a solid SC partnerships (Kwon and Suh 2005; McLaren et al. 2004; Paulraj et al. 2008; Spekman et al.1998)

and that SCI is highly related to close collaboration between partners that are operating as one single unit.

The growing interest of companies to integrate their supply chain is animated by different reasons, one of the most predominant belief is that SCI has strategic & operational importance that allow the companies become more competitive (Lambert et al., 1998; Frohlich and Westbrook, 2001; Bagchi and Skjoett-Larsen, 2002; Pagell, 2004; Fabbe-Costes and Jahre, 2008; Van der Vaart and Van Donk, 2005). Nowadays, companies are required to deal with competing priorities and business practices within and across their traditional boundaries (Gölgeci et al., 2019; Jüttner et al., 2010): the call to take initiatives to integrate within their supply chains in order to become more competitive and meet the evolving market needs (Danese and Romano, 2011) is difficult to ignore. Some of the expectations (not exhaustive) from a successful SCI project can be summarized in throughput improvements, cycle time reduction, logistic costs reduction inventory cost reduction, higher market share and greater responsiveness to customer demand (Barrat 2004; Chang and Makatsoris 2001; Stank et al. 1999). Although it has been widely accepted in the literature that SCI and performance go hand in hand (Bagchi and Chun Ha, 2005; Zailani and Rajagopal, 2005; Cousins and Menguc, 2006; Kim, 2006; Van der Vaart and Van Donk, 2005; Flynn et al., 2010), some authors such as Jahre & Fabbe-costes (2005) consider that achieving a maximum level of SCI between the different partners is unrealistic and would make SC vulnerable and with little flexibility. Other authors have different conclusions regarding the relationship between SCI and performance but, as explained previously, the fact that the definition of SCI is not unified has led to different results on the ground: when we test different integration levels, integration components with different methods of inquiry, unit of data collection at different contexts it is normal that the findings are heterogeneous and sometimes contradictory.

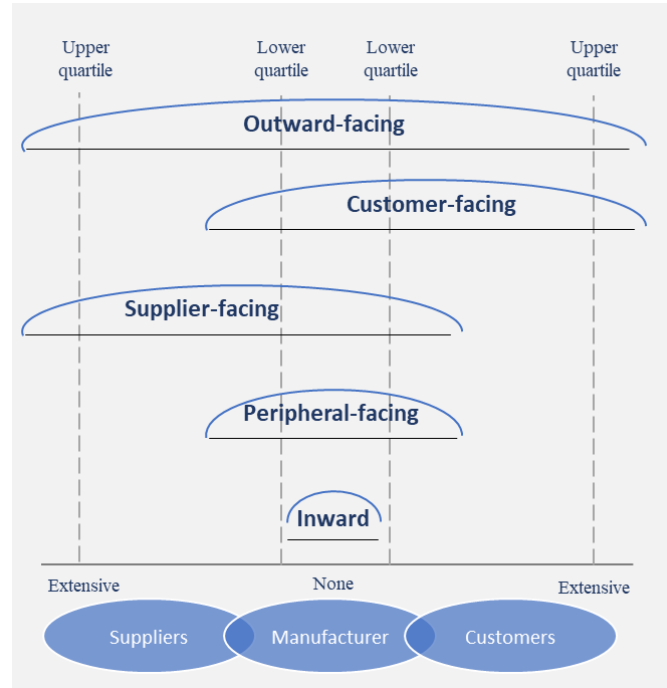
Tough we emphasis our consideration that the success of the SCI between two and / or more partners, depends on the ability to understand and model the social dynamics within the SC, which are two necessary conditions for the resolution of social dilemmas and ultimately the success of SCI project. We note that our literature debate is not about going for a “full integration” Vs. “No integration at all” but rather exposing the breadth/degree of integration to target by a company, a topic that we detail in the next section.

2.3 Supply chain integration constructs: levels & components

SCI can be addressed from two perspectives: internal integration Vs. external integration. According to Pagell (2004), internal company integration is related to integrating production and supporting functions within the same firm while external integration has been defined by Schoenherr and Swink (2012) as the integration activities happening between the firm and its suppliers and customers. Other authors have distinguish three practices of SCI, considered as the most cited in the literature (Lii and Kuo, 2016; Lotfi et al., 2013; Wong et al., 2005, 2013; Flynn et al., 2010) naming: supplier integration, customer integration and internal integration. The integration activities can be as information integration, material integration, financial integration, technological information or actors integration.

The degrees of SCI as well as the integration direction (toward suppliers and/or customer) have been schemed in the model developed by Frohlich, M.T. and Westbrook, R.(2001) - published on an award winning article that advanced tremendously the exposure and understanding of SCI - and adapted by P. Chiderhouse and D.R. Towill (2011). This reference model allow for differentiating five alternative arcs of supply chain integration: Inward facing, Periphery facing, Supplier facing, Customer facing and Outward facing.

Figure 1: Five alternative arcs of supply chain integration.



Source: Frohlich and Westbrook (2001) adapted by P. Chiderhouse and D.R. Towill (2011)

According to the model of Frohlich and Westbrook (2001) SCI is characterized as inward-facing when it is in lower quartile for suppliers as well as for customer. Periphery-facing is when we are above lower quartile for suppliers or customers but below upper quartile for suppliers and customers. Supplier-facing is when we are in upper quartile for suppliers and below upper quartile for customers. Customer-facing is when we are in upper quartile for customers and below upper quartile for suppliers. Outward-facing is when we are in upper quartile for suppliers as well as for customers.

Following the same scheme, Fawcett et al. (2002) has defined these four types of SCI as follow:

- internal cross-functional process integration (peripheral facing),
- backward integration with valued first-tier suppliers leading to integration with second-tier (supplier-facing)
- forward integration with valued first-tier customers (customer-facing) and
- complete forward and backward integration (outward-facing)

In the same line of idea, Narasimhan et al. had already stated in their article published in 1998 that the SCI can take the form of customer integration, strategic integration and supplier integration - which is also in line with the levels of integration that have been identified by Kim (2006) naming:

- company's external integration with suppliers,
- internal cross-functional integration within a company and
- company's external integration with customers.

Building on the same perspective of differentiating internal from external integration toward customer and/or suppliers, they both have different components for which there is no universal consensus. The table below encompasses the main components used by different scholars in studying both internal and external integration:

Table 2: Summary of the main concepts used in studying internal and external SCI

Study	Information integration	Material integration	Financial integration	Technological integration	Actors integration
Germain and Iyer (2006)	External Internal	External		External	External Internal
Flynn et al. (2010)	External Internal	Internal		Internal	External Internal
Zhao et al. (2011)	External Internal	Internal		Internal	External Internal
Stank et al. (2001)	External Internal	External Internal	External Internal	External Internal	External Internal
Vickery et al. (2003)	External			External	External Internal
Stock et al. (2000)	External Internal	External Internal		External Internal	External Internal
Schoenherr and Swink (2012)	External Internal	External Internal			External Internal

Source: adapted by author

Based to the table 2, we focus in our article on the predominant components of SCI: when it comes to studying internal and external SCI toward customers and suppliers, information and actors integration are the most used components. While material and technical integration are popular -which is the opposite of financial integration that seems to be out of focus for the subject studied.

Information integration inside a company involves frequent personal interaction (Pagell, 2004) and real-time high-quality information sharing between internal production and supporting functions that produces internal visibility (Rai et al., 2006 ; Barratt and Barratt, 2012 and Rungtusanatham et al., 2003). On the other hand, external information integration refers has a larger scope as it concerns the coordination of information flow across the members of the supply chain. The sharing of information can be done through information technology (Prajogo and Olhager, 2012). Besides, It has been defined by Bagchi and Skjoett-Larsen (2002, p91) as “the sharing of information and knowledge among the members in the supply chain, including sales forecasts, production plans, inventory status and promotion plan”.

Internal actor’s integration is envisioned when the different department’s inside a firm work together thanks to information sharing, common vision and goals (Kahn and Mentzer, 1998; Pagell, 2004; Basnet and Wisner, 2012), which is similar when applied between different firms (external integration) but requires dedicated investments and joint relationship efforts (Nyaga & al., 2010) to build strong and long-term relationship between partners.

These definitions are supporting our view of SCI as a complex process requiring high levels of socialization activities : reaching information integration and actors integration requires a high level of interaction and communication between various stakeholders within and between the firms. According to Cousins & al investing in these socialization activities as well as ensuring consistent involvement of both the buyer and the supplier are required to reach SCI. He also claimed that the level of interaction and communication between the various actors within and between a supply chain is critical to the integration success, hence our interest in social capital theory as a potential enabler through its dimensions.

2.4 Social capital of supply chain

Considering SCI as a collective strategical approach requiring effort mobilization from stakeholders, who are brought together from different work sites and backgrounds with potentially conflicting short term interests yet a long-term win-win equation, it represents an essentially relational stake subject to significant social dynamics.

In fact, social capital is a complex concept referring to social embeddedness of a company in a social network (Granovetter, 1985) and representing the ability of actors to obtain benefits by virtue of membership in various social structures (Portes, 1998). These benefits include, among others, privileged access to knowledge and information (Inkpen and Tsang, 2005). Some others have even considered it as an enabler for knowledge sharing between partners and stakeholders (Brachos, Kostopoulos, Soderquist & Prastacos 2007; Chaminade & Roberts 2002).

Again, this is a concept that has been defined from different angles for various scholarly purposes and thus there is a lack of agreement on its definition (Inkpen & Tsang 2005; Nahapiet & Ghoshal 1998). Some authors have limited their definition of social capital to the relationship between the actors and values or assets embedded in that relationship (Baker 1990; Bourdieu 1986; Burt 1992; Coleman 1998, Putnam 1995, Walker & al. 1997). However, we think that the behavior and the acts undertaken by the stakeholders have a major impact on the global dynamic. The definition of Nahapiet and Ghoshal (1998) is in the same line of idea since they defined social capital as "... the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (p.243).

The table 3 below includes the retained definition from the leading authors of social capital theory:

Table 3: Definition of social capital

Author	Definition
Bourdieu (1986, P248)	"The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition."
Coleman (1988, p98)	"A variety of entities with two elements in common: they consist of some aspect of social structures, and they facilitate certain action of actor"
Schiff (1992, p161)	"The set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function"
Putnam (1993, p167)	"Those features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions"
Fukuyama (1999, p1)	"An instantiated informal norm that promotes cooperation between two or more individuals".

Source: adapted by author

The application of social capital theory to supply chain has been defined historically through the works of Autry et Griffis (2008, p. 159) "the value of a firm's supply chain network, derived from both the structural configuration and the nature of direct and indirect relationships present within the supply chain" and Min et al. (2008, p.288) "A set of social resources embedded in the relationships in a supply chain network, including not only relationships per se but also interactions among different actors and the processes derived from those relationships within a supply chain..".

In order to get a good understanding of collective actions and social dynamic in supply chain integration projects, we have capitalized on social dilemmas' perspective previously introduced. By definition, companies are part of multiple supply chains (Hamel, 1991 ; Lincoln et al., 1992),

with potentially heterogeneous or conflicting interests (Wit et Kerr, 2002). According to Wit & Kerr (2002), social dilemma studies consider that the more a firm identifies itself socially to a particular alliance (in our context a supply chain) the more it will do what is in the interest of that alliance. However, when partners start to have an opportunistic behavior despite the collective interest, the supply chain fails and consequently the competitiveness declines because no partner wants to make an initial investment (Fawcett et al., 2008)

While research works upon social capital are profusely available, their dimensions are not clearly distinguished and are even overlapping according to Inkpen & Tsang 2005 and Nahapiet & Ghoshal 1998. As stated previously social capital has been subject to multiple definition with lack of consensus in the wider literature, leading to the consideration of various dimensions (Flap & Volker 2001; Kang, Morris & Snell 2007; Leana & van Buren 1999; Nahapiet & Ghoshal 1998).. In fact, it was considered as a uni-dimensional concept but then the concept evolved and emerged as a multi-dimensional one (Huysman & Wulf 2005; Nahapiet & Ghoshal 1998). In our paper, as per other studies (exemple: Inkpen & Tsang, 2005; Martínez-Canas, Sáez-Martínez & Ruiz-Palomino, 2012) we will operationalize social capital based on the framework of Nahapiet and Ghoshal (1998) in which they consider three dimensions: structural (network between the actors), cognitive (embedded place of their network in their mind) and relational (their undertaken actions) - while other authors have a more restrictive vision of the dimensions bordering the concept.

Relational dimension of supply chain social capital

Relational dimension of social capital refers to the category of personal relationships individuals develop with each other's through a history of interactions (Nahapiet & Ghoshal, 1998). Tsai and Ghoshal (1998, p. 465) describe it as the "assets that are rooted in these relationships". It refers to the assets created and leveraged through relationships (Lindenberg, 1996). Following Nahapiet and Ghoshal (1998) the relational dimension of social capital is manifested as trust (Fukuyama, 1995), norms of reciprocity (Coleman, 1990) and identification (Nahapiet and Ghoshal, 1998).

• Trust

Trust has been defined by Child (2001, p. 275) as "the willingness of one person or group to relate to another in the belief that the other's action will be beneficial rather than detrimental, even though this cannot be guaranteed".

Based on a corpus body of research (Fukuyama, 1995; Gambetta, 1988; Putnam, 1993, 1995; Ring & Van de Ven, 1992, 1994; Tyler & Kramer, 1996) there is evidence that when relationships are marked by trust, individuals are more willing to engage in social exchange in general and knowledge exchange in particular. According to researches of Vries, Van den Hoof and DeRidder (2006) parties disseminate naturally knowledge with no tangible expectation other than feeling satisfied when the relationship is characterized by an elevated level of trust.

Furthermore, trust is also perceived as a key factor fostering the willingness of the parties to share knowledge (Inkpen and Tsang, 2005) and also a major facilitator of social exchange transactions (Bartol and Srivastava, 2002). In the same line of thought, Nonaka highlights that inter-personal trust is a determining factor for building a context suitable for knowledge sharing activities. Knowledge sharing being considered as an important process in interorganizational collaboration (Grant, 1996) such as supply chain integration projects.

• Norms of reciprocity

According to Coleman (1990), norms of reciprocity represent a degree of consensus in the social system while reciprocity is defined by Stone (2001) as "the exchange process in social relationships among which the goods or services offered by an individual are reimbursed by another who accepted and used them originally"

In social exchanges, norms of reciprocity create an obligation to fulfill necessary activities in the future (Nahapiet and Ghoshal, 1998). Furthermore, norms of reciprocity refer to “actions that are contingent on rewarding reactions from others and that cease when these expected reactions are not forthcoming” (Blau, 1964, p. 6).

In a context of supply chain integration between two firms, the norm of reciprocity will be upon the mutual expected sharing of knowledge between the social actor's part of both companies: partners of SC will be willing to engage in cooperative interactions based on previous historical transactions since the obligation to help (or not) arises from resources received previously (or not). In fact, reciprocity is considered as a factor that drives knowledge sharing (Davenport and Prusak, 1998)

We note that in the absence of norms of reciprocity as well as a lack of trust in a supply chain configuration, we are exposed to experience a behavior of the chain's stakeholder known by “free riding” qualified as a defensive defection of the supply chain. This behavior occurs when one or many of the supply chain members is/are eager to get the benefits expected from being part of a SC without participating in their creation and thus impacting negatively the performance of the whole chain (Olson and Olson, 1965).

- **Identification**

Identification is defined by Nahapiet and Ghoshal (1998) as “the process whereby individuals see themselves as one with another person or group of people”. It's actually the process in which individuals associate themselves to a reference group and use their standards and values as a norm for comparison. The drawback is when they don't identify themselves to the same reference group, but rather to ones with conflicting identities, it can turn into a barrier for sharing information, knowledge creation and learning (Van Dijk & al., 2016). In fact, identification has a direct influence on the goodwill and readiness of individuals to share knowledge between social partners (Nahapiet and Ghoshal, 1998) and in turn stakeholders involved in a SCI project.

When applying this process to supply chain integration projects, belonging to the same group-mate stimulate the engagement of the parties into social interactions and fosters their consent to share the valuable knowledge embedded in their mind.

Cognitive dimension of supply chain social capital

The second dimension of social capital naming "Cognitive dimension" involves the resources providing shared meaning and understanding between network members. Cognitive dimension refers to those resources “providing shared representations, interpretations, and systems of meaning among parties” (Cicourel, 1973). These resources include a shared vision (Tsai and Ghoshal, 1998), and shared language, (Nahapiet and Ghoshal, 1998).

- **Shared vision**

A shared vision “embodies the collective goals and aspirations of the members of an organization” (Tsai and Ghoshal, 1998, p. 467; It is schemed as “a bonding mechanism that helps different parts of an organization to integrate or to combine resources” ([73], p. 467). According to same author's (Tsai and Ghoshal, 1998), it is more likely to have stakeholders becoming partners who share and exchange willingly their resources when they have a common vision.

- **Shared language**

Shared language is not limited to the language itself, according to Lesser and Storck (2001) “it also addresses the acronyms, subtleties, and underlying assumptions that are the staples of day-to-day interactions”. Based on the works of Nahapiet and Ghoshal (1998) It also represents the overlap in knowledge between relational partners. In other words, the fact that two stakeholders have a similar background or work experience will facilitate communication and knowledge sharing and enable a common understanding of collective goals. Shared language enables unlocking the access to stakeholders' knowledge and information, in turns it enhances the chance of creating combined knowledge from the ones traded between stakeholders through social exchange.

Structural dimension of supply chain social capital

Structural dimension represents the overall pattern of connections between actors - that is, who you reach and how you reach them (Burt, 1992)

- ***Social interaction ties***

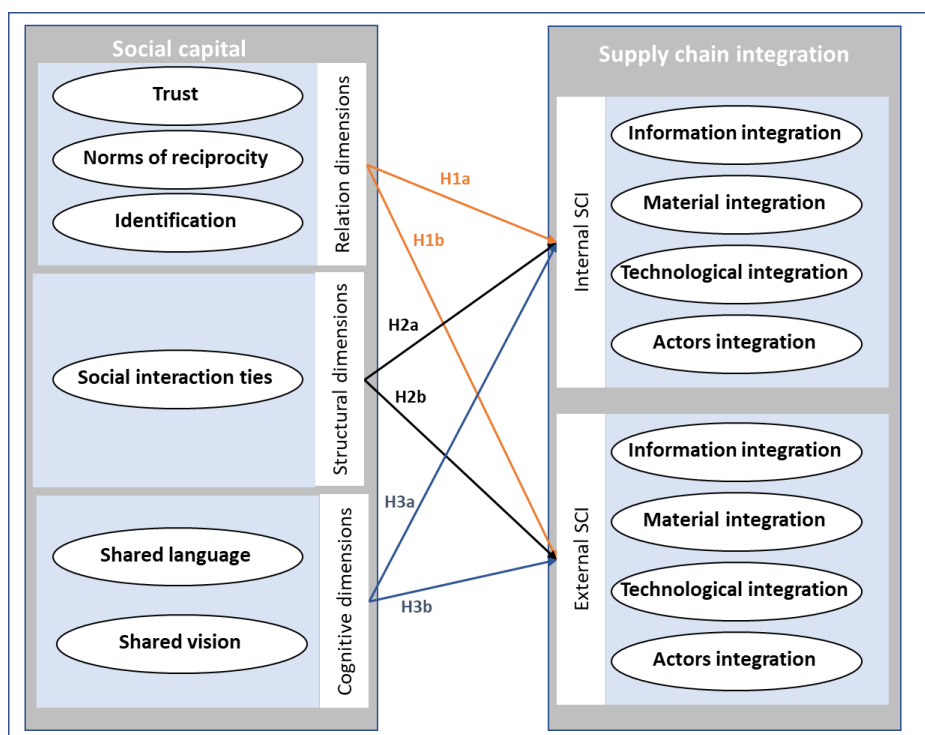
Among the important facets of this dimension is the presence or absence of social interaction ties between actors (Scott, 1991 and Songini, 2003) which are defined as channels for information and resource flows (Tsai and Ghoshal, 1998). We can qualify the tie between individual as strong when the social exchanges are characterized by large allowance of time, emotional intensity and intimacy (mutual confiding), high communication frequency and a reciprocity in services exchanges (Granovette, 1973). Furthermore, Nahapiet and Ghoshal (1998) stated that “the fundamental proposition of the Social Capital Theory is that network ties provide access to resources”. In fact, the breadth, intensity and frequency of knowledge sharing (as a resource) is impacted by the level of strength of the social interaction ties between the supply chain integration partners.

3. Conclusion & further discussions

With the exposed literature upon SCI definition, foundations and constructs it is now clear that the integration project is usually initiated by companies as a strategical approach to collaborate with the external supply chain partners (including suppliers, carriers & forward companies and also customer) and/or for internal organizational collaboration (Flynn et al. 2010) with the motivation to benefit from, as per confirmed by a lot of research's (Barrat 2004; Chang and Makatsoris 2001; Stank et al. 1999), throughput improvements, cycle time reduction, inventory cost reduction, higher market share and greater responsiveness to customer demand. This jackpot is attractive and appealing to any company interested in enhancing its global performance - still the modus operandi to unlock the benefits related to the SCI is not standard and unclear for the companies. As exposed in the article, this is mainly due to the lack of universal agreement upon what SCI really encompasses as components and constructs.

We aimed through this article, among others, at helping organizations capture the benefits of synergy in the frame of intra- and inter-organizational collaborations through identifying potential enabling factors of SCI. Considering that SCI is subject to social dynamics that constraints its success or failure we have utilized social capital as a grounding theory to understand dimensions that potentially might impact the implementation of any SCI project. The dimensions of supply chain social capital where elaborated and led us build the theoretical model suggested below:

Figure 2: Proposal of a theoretical modal to be further investigated



Source: author

In this direction, we have formulated the potential hypotheses¹ below that require a deeper theoretical investigation to strengthen their foundations:

- H1a: There is a positive relationship between the intensity of relational dimensions of social capital and the extent of internal SCI
- H1b: There is a positive relationship between the intensity of relational dimensions of social capital and the extent of external SCI
- H2a: There is a positive relationship between the intensity of structural dimensions of social capital and the extent of internal SCI
- H2b: There is a positive relationship between the intensity of structural dimensions of social capital and the extent of external SCI
- H3a: There is a positive relationship between the intensity of cognitive dimensions of social capital and the extent of internal SCI
- H3b: There is a positive relationship between the intensity of cognitive dimensions of social capital and the extent of external SCI

For future research, this model can be subject to operationalization of its variables, enrichment with contextual elements from a chosen field to be studied and then tested empirically

One of the potential limits of this study aiming at verifying a potential cause and effect link between the identified variables in figure 2 is that it needs to be studied in a research field where the concept of SCI is sufficiently mature. The unit of analysis being the company, we need to work on a research field with a sufficient number of companies customary to SCI activities – which is not the case according to the works of Balambo A. and Houssaini A. (2011, 2012, 2013).

Selecting a research field in which SCI concept is already applicable with a sufficient pool of companies is available is a pre-requisite to conduct this study with respectable data and results. A

¹ Disclaimer: as this article is dedicated for literature review aiming at bridging the gap of the components forming SCI from social capital perspective, it is thus not in the agenda to operationalize the variables forming the suggested model nor detailing their measuring scales. It can be in fact the subject of a future empirical study.

reorientation toward Western countries such as the ones of central Europe could be an option but still with the barrier of accessing notable database of companies to consider in the study.

Also for future research, there is a need to identify a mediating variable as the direct link between social capital dimensions and SCI is not so obvious. In this optic, and as indicated tacitly in our article, we suggest to capitalize on the knowledge based view theory (KBV) to bridge the mediation between social capital dimensions and internal and external SCI. Furthermore, Nahapiet and Ghoshal (1998) stated that “the fundamental proposition of the Social Capital Theory is that network ties provide access to resources”. In fact the breadth, intensity and frequency of knowledge sharing (as a resource) is impacted by the level of strength of the social interaction ties between the supply chain integration partners. Through our review of this concept it is obvious that pursuing SCI involves collaboration at different levels between the stakeholders within the chain making the boundaries of the firms blurred and its success conditioned by the goodwill of the participants who possess the knowledge. The firm being defined within the emerging knowledge based view (KBV) (Kogut and Zander, 1992; Nonaka, 1994; Udo and Kogut, 1995; Grant, 1996a,b, 1997; Spender, 1996) as an institution for knowledge integration and has a key role of creating, storing and applying knowledge.

According to Lee, Padmanabhan, and Whang 1997a; Lee, So, and Tang 2000 knowledge provides both a motivation for collaboration between supply chain partners and a key element of collaboration between supply chain partners with the potential for enabling more effective integration. Moreover, other authors suggested that an interorganizational collaboration (such as supply chain integration project) are successful when they are characterized by high levels of knowledge sharing and communication skills at both the intra- and inter-organizational levels (Barrat 2004; Clark and Lee 2000).

The utilization of the knowledge base view theory for the mediation between SCI and social capital dimensions would ultimately help companies in addressing SCI projects differently with more controlled levels of risk failure.

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