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Social capital and innovativeness of social enterprises: opportunity-motivation-ability and knowledge creation as mediators

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ABSTRACT

This study contributes to an increased understanding of the role of opportunity-motivation-ability factors and knowledge creation in linking social capital and firm innovativeness. A pre-tested and pilot tested survey questionnaire was used to collect data from 112 managerial-level employees of Australian social enterprises. Structural equation modeling results confirmed the mediation effects of opportunity-motivation-ability factors and knowledge creation. Opportunity-motivation-ability factors interact with each other in their effect on knowledge creation leading to innovativeness. Results further support the importance of cognitive social capital for innovativeness. This study also extends the innovativeness concept into a new, previously overlooked application area, the Australian social enterprise context. Study findings suggest social enterprise managers to create more opportunities to knowledge exchange and reinforce shared vision to maintain a higher innovativeness. The future studies can confirm the study results with larger samples and test the moderation effect of social mission on the relationships established in this study.

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1. Introduction

Innovativeness enables firms to adapt to the demands of rapidly changing competitive business environments (Farnese & Livi, 2016) and enables entry into new markets and renewal of existing business domains (Cho & Pucik, 2005). Because innovativeness is an important success factor, understanding it and its antecedents has become important (Quintane, Mitch Casselman, Sebastian Reiche, & Nylund, 2011). The existing literature reports on the importance of social capital for innovation (Dakhli & De Clercq, 2004; McFadyen & Cannella, 2004; Sanchez-Famoso, Iturralde, & Maseda, 2015; Smith, Collins, & Clark, 2005) noting that most of the activities leading to innovation depend on social capital (Sanchez-Famoso, Maseda, & Iturralde, 2014). However, our knowledge of the link between social capital and innovativeness is incomplete as studies have viewed organisational social capital as a “black box of producing innovation” and the mediatory processes and capabilities which transform knowledge into innovation have been overlooked (Filiari & Alguezaui, 2014, p. 748). Moreover, while extant literature has studied innovation (e.g., Allameh, 2018; Jaskyte, 2018; Martínez-Pérez & Beauchesne, 2017), it has however, overlooked firm level innovativeness (Kyrgidou & Spyropoulou, 2013; Parra-Requena, Ruiz-Ortega, García-Villaverde, & Rodrigo-

Alarcón, 2015) which is a critical determinant of organisational long-term success than any specific innovation (Hult, Hurley, & Knight, 2004; Siguaw, Simpson, & Enz, 2006). Innovativeness, defined as a firm’s openness to innovative ideas (Hult et al., 2004) is a behavioural tendency towards innovation creating capabilities contributing to the long-term success of the organisation (Siguaw et al., 2006).

This study seeks to answer the question “in what ways, if any, do social capital, opportunity-motivation-ability factors, and knowledge creation explain innovativeness of Australian social enterprises?” Social capital does not trigger knowledge resources embedded in social relationships by itself, but opportunity-motivation-ability factors which are the prerequisites of knowledge creation (Argote & Ingram, 2000; Nahapiet & Ghoshal, 1998; Shu, Page, Gao, & Jiang, 2012). This study argues that innovativeness originates in the employee’s involvement in organisational knowledge creation practices building on multiple knowledge domains (Floyd & Lane, 2000). By clarifying the links between social capital, opportunity-motivation-abilities, knowledge creation and innovativeness, this study contributes to a richer understanding of the social capital theory of innovativeness. Opportunity-motivation-ability factors form a robust framework for identifying the essential relationships needed to manage knowledge creation leading to innovation (Turner & Pennington, 2015).

We also extend the social capital and innovativeness literature into a new, previously overlooked application area, the social enterprise context (Monroe-White & Zook, 2018). The Australian social enterprise sector is a rapidly growing sector estimated to contribute to Gross Domestic Production by nearly 2–3% (Victoria State Government, 2017). Consistent with the world context for social enterprises, Australian government recognises social enterprise activities as market-based and innovative solutions driven by a social mission to address social challenges (Department of Innovation Industry Science and Research, 2011). Australian social enterprises are highly diverse in terms of their social missions. Therefore, this emerging sector makes the study context a valuable setting for the examination of social capital and the innovativeness relationship. Our study also makes a valuable contribution by increasing our understanding of the innovation process and the innovativeness of social enterprises (Monroe-White & Zook, 2018). Social enterprises are knowledge-intensive organisations (Bloice & Burnett, 2016; Lettieri, Borga, & Savoldelli, 2004) but there is a scant understanding of the knowledge management processes and practices of third sector organisations (Cantu & Mondragon, 2016; Ragsdell, Espinet, & Norris, 2014; Rathi, Given, & Forcier, 2016) and the organisational mechanism of deploying knowledge strategically into the innovation process (Koch, 2011). Therefore, this study emphasises the need of observing firm-level innovativeness as an essential part of the innovation strategy of a social enterprise.

2. Theory and hypothesis building

Social capital is a collection of resources that emerge from both the firm's structure and the content of relationships with three dimensions: structural, relational, and cognitive social capital (Nahapiet & Ghoshal, 1998). Organisational social capital is a strategic asset (Yen, Tseng, & Wang, 2015) of which internal social capital is the foundation for collective organisational activities (Leana & Van Buren, 1999). Organisational innovation is fundamentally a collaborative effort (Subramaniam & Youndt, 2005) subject to social capital at both organisational and the network level (Camps & Marques, 2014; Gulati & Singh, 1998). The pivotal role of internal social capital for innovation is widely acknowledged, yet more remains to be understood about this contribution in organisations (Tasavori, Zaefarian, & Eng, 2018; Wang, Guidice, Zhou, & Wang, 2016). Therefore, this study focuses on social capital embedded in the internal relationships of an organisation (Nahapiet and Ghoshal 1998).

According to social capital theory (Nahapiet & Ghoshal, 1998) and knowledge creation theory

(Nonaka & Takeuchi, 1995), social capital facilitate knowledge creation (Leana & Van Buren, 1999; Tsai & Ghoshal, 1998) by providing access to relevant knowledge (Fleming & Sorenson, 2001) and a common interest with mutual trust and appreciation of the value of others' knowledge (Van Den Hooff & de Leeuw van Weenen, 2004). However, the mere existence of strong ties, trusted relationships and a shared vision do not directly leverage knowledge resources embedded in those relationships unless opportunities to knowledge exchange, motivation to knowledge exchange and ability to knowledge exchange and combine (Argote & Ingram, 2000; Moran & Ghoshal, 1996; Nahapiet & Ghoshal, 1998) are present. These are considered to be necessary conditions for resource exchange and combination (Moran & Ghoshal, 1996) but the literature has largely ignored these connections on internal social capital and innovativeness relationship.

The above arguments which are built on social capital theory, knowledge creation theory and opportunity-motivation-ability framework underpin the hypothesised model tested in this study (Figure 1). Accordingly, social capital dimensions, structural, relational and cognitive, are related to opportunity-motivation-ability to knowledge exchange and combine. Knowledge creation mediates the opportunity-motivation-ability to knowledge exchange and combine and innovativeness relationship, subsequently. Firm age and firm size are used as control variables given their effects on innovativeness but are not shown in Figure 1 for the convenience and clarity.

2.1. Associations among the different dimensions of social capital and opportunity-motivation-ability

Structural social capital is the overall configuration and patterns of connections between people (Aslam, Shahzad, Syed, & Ramish, 2013). This manifests itself as the strength of ties reflecting the degree of closeness and the solidity of relationship history among organisational members (Granovetter, 1973). According to social capital theory (Nahapiet & Ghoshal, 1998), strength of the ties among the organisational members contributes to an enabling context for knowledge creation by developing mutual confidence and readiness among organisational members to engage in intensive interactions. This enabling context or the opportunities to knowledge exchange are the contextual mechanisms through which knowledge creation behaviours are encouraged or discouraged (Turner & Pennington, 2015). This will reduce the interaction uncertainty and the amount of time and effort needed to access knowledge sources with greater intensity, frequency, flexibility and breadth (Amayah, 2013; Camps & Marques, 2014; Larson, 1992; Nahapiet & Ghoshal,

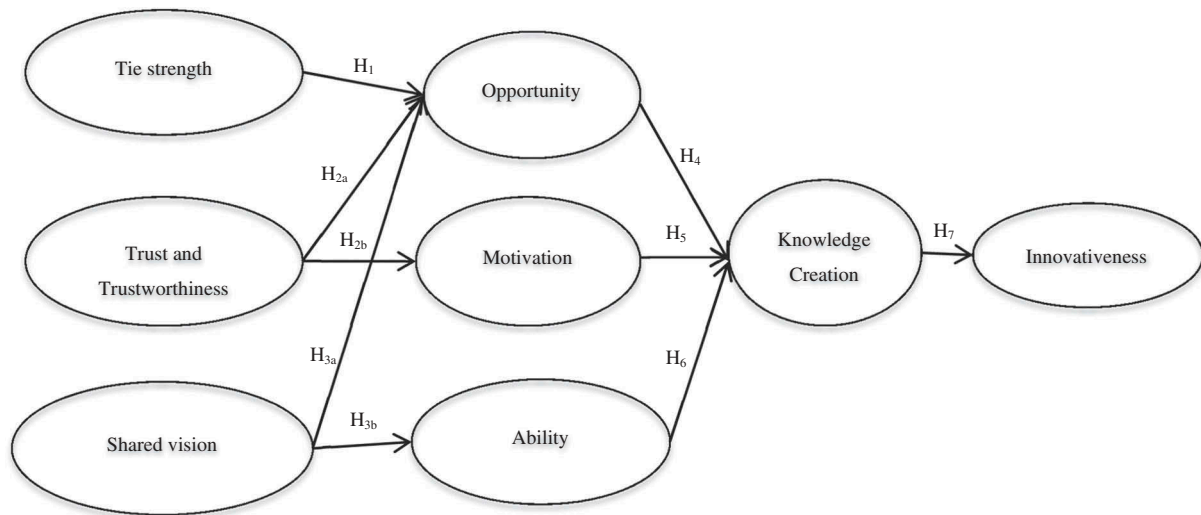


Figure 1. Hypothesised model of social capital and innovativeness.

Note:* For the convenience and clarity control variables and their paths are not shown in the hypothesised model Opportunity = opportunities for knowledge exchange; Motivation = motivation to knowledge exchange; Ability = Ability to knowledge exchange and combine

1998). Strength of the ties will also increase the exchange efficiency and improve quality of information (Camps & Marques, 2014; Reagans & McEvily, 2003). Thus, hypothesis 1 is proposed as:

Hypothesis₁: *The stronger the internal ties, the more there are opportunities to knowledge exchange.*

Relational social capital is defined as the individuals' positive expectations about the intent and behaviours of organisational members given the organisational roles, responsibilities, experiences and interdependencies (Akhavan & Hosseini, 2016; Maurer, Bartsch, & Ebers, 2011; Nahapiet & Ghoshal, 1998). Trust is a major component of relational social capital (Tsai & Ghoshal, 1998) and it is the organisational members' expectations about other's motives in risk and vulnerability endowed circumstances. Trust allows the organisational members to obtain advice from others without fear of condemnation (Abrams, Cross, Lesser, & Levin, 2003, p. 65). Hence, trust increases opportunities to knowledge exchange by encouraging people to discuss the problems they encounter through which they either acquire new knowledge or enhance their existing knowledge (Akhavan & Hosseini, 2016). Trust decreases perceived uncertainty of opportunistic behaviour of the partners, facilitates risk-taking behaviours (Parra-Requena et al., 2015; Wang, Fanghui, & Jinxiang, 2007) and reduces the monitoring costs (Parra-Requena et al., 2015) leading to more knowledge creation opportunities with higher approachability (Willem & Scarbrough, 2006). Hypothesis 2_a proposes:

Hypothesis_{2a}: *The higher the perceived trust among the organisational members, the more there are opportunities to knowledge exchange.*

Knowledge is "intimately and inextricably bound to people's egos and occupations" and does not easily shared with others (Davenport, De Long, & Beers, 1998, p. 45) without a strong internal or external motivation (Stenmark, 2000). Motivation to knowledge exchange is the organisational member's willingness to act (Rothschild, 1999). Trust is a relationship quality where the interaction is marked by the development of goodwill trust and expectations of reciprocity (Yli-Renko, Autio, & Sapienza, 2001). A strong norm of reciprocity among the members, make them feel obliged to share their knowledge (Wasko & Faraj, 2005) by creating an internal motivation (Akhavan & Hosseini, 2016; Chang & Chuang, 2011; Kittikunchotiwt, 2015). This is proposed in hypothesis 2_b.

Hypothesis_{2b}: *The higher the perceived trust among the organisational members, the higher is the motivation to knowledge exchange.*

Cognitive social capital is the capacity of an organisation to share the same vision, mission and goals among its members (Chow & Chan, 2008; Inkpen & Tsang, 2005). Shared vision provides a common understanding and an approach to the task and outcome achievement (Inkpen & Tsang, 2005, p. 153). Common goals of the organisation are clarified avoiding the potential misunderstandings in the communication, hence a binding force that creates trust (Akhavan & Hosseini, 2016; Tsai & Ghoshal, 1998)

leading to increased access to knowledge sharing (Chiu, Hsu, & Wang, 2006). Ease of comprehending the benefits of knowledge exchange is resulted in more opportunities to knowledge exchange and resource creation (Hu & Randel, 2014; Tsai & Ghoshal, 1998). Common frame of reference compels organisational members to make the time necessary for interactions available, support the knowledge creation driven policies, and procedures, hence this study proposes hypothesis 3_a as:

Hypothesis_{3a}: The more the organisational members share a common vision, the more there are opportunities to knowledge exchange.

Although organisational members have an intention or willingness to share knowledge, the type of knowledge that is exchanged is important for them to consider, which in turn depends on the ability to exchange knowledge. The skills and knowledge base pertinent to this action is known as the ability to knowledge exchange and combine (Rothschild, 1999). A shared vision will provide organisational members with a focused frame of reference and an opportunity to learn, eventually enhancing their ability to knowledge exchange and combine (Chou, Chang, Lin, & Chou, 2014). This would help organisational members to customise the knowledge needs enhancing the ability to value, assimilate and apply new knowledge towards the organisation's goal achievement. Accordingly, hypothesis 3_b is proposed:

Hypothesis_{3b}: The more the organisational members share a common vision, the higher is the ability of organisational members to exchange and combine knowledge.

2.2. Associations between opportunity-motivation-ability factors and knowledge creation

Opportunity-motivation-ability framework (Argote, McEvily, & Reagans, 2003; Siemsen, Roth, & Balasubramanian, 2008; Turner & Pennington, 2015) explains whether: an environmental inducement is present; the opportunities are realistically shared among organisational members; and the successful opportunity exploitation achieves organisational goals (McMullen & Shepherd, 2006). Network members may undermine the benefit for knowledge creation in the absence of opportunity-motivation-ability to knowledge exchange and combine. Knowledge creation theory defines organisational knowledge creation as the process of making available and amplifying knowledge created by individuals, as well as crystallising and connecting it with an organisation's knowledge system (Nonaka, Toyama, & Konno,

2000). New resources including knowledge are created by combination – creation of knowledge either through incremental or radical changes to the existing knowledge and exchange – transfer of explicit knowledge held among the different parties to others in the organisation (Moran & Ghoshal, 1996). Knowledge creation is induced by the enabling contexts (Turner & Pennington, 2015) such as management support, autonomy, entrepreneurial organisational design and culture (Hornsby, Kuratko, & Zahra, 2002). These opportunities are essential as tacit knowledge transmission results from a complex time-consuming osmosis process (Radaelli, Lettieri, Mura, & Spiller, 2014). This proposition is tested in hypothesis 4.

Hypothesis₄: The more there are opportunities to exchange, the higher is the level of knowledge creation.

Motivation is the most important factor (Radaelli et al., 2014) which reflects on the willingness to exchange knowledge (Siemsen et al., 2008). Organisational members rationally and intentionally decide to engage in knowledge exchange when they positively assess the benefits of such action (Lam & Lambermont-Ford, 2010). Extrinsicly, strong norms of reciprocity can make knowledge contributors feel obliged to share their knowledge (Wasko & Faraj, 2005) and intrinsicly becomes an effective motivation to promote knowledge sharing (Kankanhalli, Tan, & Wei, 2005). The perception of socially united identification and togetherness within an organisation (Kramer & Goldman, 1995) enhances collective work and willingness to share knowledge (Kittikunchotiwut, 2015; Kramer & Goldman, 1995) which in turn increases knowledge creation (Kramer & Goldman, 1995). This proposition is stated in hypothesis 5.

Hypothesis₅: The higher is the motivation to exchange knowledge, the higher is the level of knowledge creation.

Ability is defined as the talent, skills or the proficiency in an area related to action and whether it could feasibly be shared or coordinated throughout the organisational network. The ability to recognise knowledge, to assimilate and use knowledge is critical, given the significance in organisational learning and innovation (Cohen & Levinthal, 1990) and the difficult nature of transmitting knowledge to others (Szulanski, 1996). Even though the organisational members have opportunities to exchange knowledge and the motivation to exchange knowledge, inability to act on those opportunities will hinder knowledge creation (Reinholt, Pedersen, & Foss, 2011). The confidence and the competencies needed to understand the

knowledge needs and to customise the exchange are acquired through these abilities. Therefore, hypothesis 6 is proposed:

Hypothesis₆: The higher the ability to exchange and combine knowledge, the higher is the level of knowledge creation.

2.3. Association between knowledge creation and innovativeness

Knowledge creation is an essential drive (Nonaka & Takeuchi, 1995) and pivotal for supporting and promoting favourable innovation outcomes in organisations (Scarborough, 2003). An effective sharing mechanism of knowledge residing in members will create synergistic learning to make the organisation more innovative (Chen, Huang, & Hsiao, 2010). Knowledge creation provides organisational members with opportunities to recombine the existing knowledge and to create new knowledge (Argote et al., 2003). The increased availability of new knowledge stock (Nonaka & Takeuchi, 1995) is an essential element to be innovative (Kogut & Zander, 1992). This new knowledge helps members to learn new ways of performing and identifying new solutions (Sabherwal & Becerra-Fernandez, 2003) and open to new business opportunities (Darroch & McNaughton, 2002) through synergistic benefits and mutual learning. Therefore, innovativeness may depend upon the organisation's ability to obtain and share valuable knowledge (Kogut & Zander, 1992) and it is tested in the seventh hypothesis:

Hypothesis₇: The higher the level of knowledge creation, the higher is the level of innovativeness of the organisation.

3. Methods

3.1. Sample and data collection

The hypotheses were tested by using survey data from 112 social enterprises across Australia. The sample was drawn from the social enterprise finder directory of Social Traders Australia given the absence of a legally defined sector, registration database and a definition for social enterprises in Australia. According to Social Traders of Australia, a social enterprise is “an enterprise that has a defined primary social (this includes environmental or other public benefit) purpose; is able to provide evidence of its achievement; derives a substantial portion of its income from trade and reinvests 50% or more any annual profits made towards achieving the social purpose” (Social Traders, 2016). To ensure the data integrity, active operation of every social enterprise was verified by

cross-examination through a web search and telephone contact; repeated listings were removed and a final database of 576 active social enterprises was developed. Before embarking on the main data collection, a pre-test and a pilot test were conducted (de Vaus, 1995; Malhotra & Grover, 1998) to assess validity, consistency and reliability of the measures (de Vaus, 1995; Judd, Smith, & Kidder, 1991).

3.2. Survey

Tailored Design Method of Dillman (2000) was adopted mixing online survey and a postal survey to increase the response rate. The questionnaire survey was sent to 476 managers of social enterprises. This single respondent use is considered as an appropriate and a necessary means of operationalizing key constructs of a study ensuring reliability and validity (Lyon, Lumpkin, & Dess, 2000). A total of 112 returned questionnaires were usable, yielding a 23% response rate, which is consistent with the previous Australian studies such as Barraket, Mason, and Blain (2016); Barraket and Furneaux (2012) and Barraket, Collyer, O'Connor, and Anderson (2010). Of the respondents 59% were male, 90% were 31–70 years of age and nearly 56% emphasized “social value” in their mission whilst 30% focused on “economic value” and 14% on “environmental value”. Around 71% of the social enterprises were older than 10 years falling into the small to medium size categories. Majority were incorporated (81%).

Non-response bias was assessed by performing Independent Sample t-test on social enterprises' age (Bell, 1996; Delgado-Verde, Amores-Salvadó, Martín-de Castro, & Navas-López, 2014; Gebreyesus, 2009; Rubera & Kirca, 2012). The test was statistically insignificant ($t = -0.90$, $p > 0.05$; Levene's test for equal variance, $F = 0.14$, $p > 0.71$) confirming the absence of non-response bias (Armstrong & Overton, 1977). In addition to the previously validated measures (Yli-Renko et al., 2001), following Podsakoff, MacKenzie, Lee, and Podsakoff (2003)'s recommendation, 39% of explanation by the first factor of Harman's single factor (Donate & Guadamillas, 2015) confirmed the absence of common method bias in the data.

3.3. Measures

Ensuring measurement and construct validity (Lyon et al., 2000) and reliability (Judd et al., 1991; Malhotra & Grover, 1998) existing scales with multi-item measures were used (de Vaus, 1995; Yli-Renko et al., 2001). The previously validated five items scale by Hurley and Hult (1998) measured innovativeness. This scale has widely been used in management and entrepreneurship research to measure innovativeness

(e.g., Cepeda-Carrion, Cegarra-Navarro, & Jimenez-Jimenez, 2012; Hult, 2003; Kyrgidou & Spyropoulou, 2013; Tajeddini & Trueman, 2008). The degree of innovativeness was measured by the items anchored on to a seven-point Likert scale: “strongly disagree” = 1 through “strongly agree” = 7.

Tie strength was measured by using the items from Yli-Renko et al. (2001) and Tsai and Ghoshal (1998). Trust and shared vision were measured by using the items from Leana and Pil (2006) and Chiu et al. (2006), respectively. Respondents indicated the degree of agreement to the given statements by rating on a seven-point scale where “strongly disagree” = 1 and “strongly agree” = 7. The reverse coded items included in these scales were restated as positive statements given the ambiguity communicated by respondents during the pre-test.

Knowledge creation and opportunity-motivability were operationalised by taking the items from Shu et al. (2012) and Collins and Smith (2006), respectively. Responses were provided on a seven-point Likert scale ranging from “strongly disagree = 1” to “strongly disagree = 7” indicating the degree of knowledge creation and the degree of opportunity availability, motivation and ability to exchange and combine knowledge.

Exploratory Factor Analysis (EFA) with Varimax Factor Rotation technique (Donate & Guadamillas, 2015; Tabachnick & Fidell, 2006) and Confirmatory Factor Analysis (CFA) were conducted to assess construct validity. The Kaiser-Meyer-Olkin (KMO = 0.86) was well above the generally accepted threshold of 0.8 (Cerny & Kaiser, 1977) and Bartlett’s test of sphericity was statistically significant ($\chi^2 = 2440.24$, $df = 378$, $p < 0.01$) confirming the sample adequacy and the suitability of data for the analysis. Three factors with loadings less than 0.7 and cross-loadings were removed from the scales (Hair, William, Barry, & Rolph, 2010). In CFA, discriminant validity, convergent validity and reliability were examined by assessing the Average Variance Extract (AVE), Fornell-Larcker Criterion, composite reliability and Cronbach’s alpha (Hair et al., 2010). The results are summarized in Table 1. Fornell-Larcker Criterion (Square root of AVE greater than inter-construct correlations) confirms the discriminant

validity of the items. Composite reliability is above 0.7 for all the variables ensuring higher reliability. AVE for all the variables were above 0.5 (Hair et al., 2010) confirming the convergent validity. General fit indices indicated a satisfactory level of fit: $\chi^2(215) = 351.64$, $p < 0.001$, $\chi^2/DF = 1.58 < 3$; GFI = 0.80; RMR = 0.09; NFI = 0.83; IFI = 0.93; CFI = 0.93; TLI = 0.92; RMSEA = 0.07; SRMR = 0.06 (Hair et al., 2010). Full list of items with factor loadings is given in Appendix A.

3.4. Control variables

Firm age and firm size were used as control variables. Firm age is a meaningful boundary condition in innovation and entrepreneurship research (Anderson & Eshima, 2013; Rosenbusch, Brinckmann, & Bausch, 2011). Older firms tend to have the broader market understanding to design entrepreneurial actions (Cohen & Levinthal, 1990) while there may be less significant outcomes given the declining market relevance of the knowledge (Anderson & Eshima, 2013). There is a considerable difference in capabilities among small and larger firms (Ojiako, Chipulu, Karatas-Ozkan, Siao, & Maguire, 2015). Larger firms require a more structured approach to executing organisational activities than small firms (Ahuja and Morris Lampert, 2001) often limiting the prompt changes due to structural complexities (Baker & Cullen, 1993). Firm age was measured in terms of the number of years in active business operation while firm size was measured in terms of the number of employees, as per the Australian Bureau of Statistics definition.

3.5. Analysis

Main data analysis began with testing for correlations among variables. The hypothesised conceptual model was tested through Structural Equation Modelling (SEM) with maximum likelihood estimation (Hair et al., 2010). In testing the theoretical framework, several nested models were compared following Yli-Renko et al. (2001) and Seibert, Kraimer, and Liden (2001). Literature recommends nested model comparisons as a means of showing that a hypothesised

Table 1. Discriminant validity, convergent validity and reliability.

Variables	Cronbach’s Alpha	Composite Reliability	AVE	1	2	3	4	5	6	7	8
1 Tie strength	0.80	0.92	0.85	0.92							
2 Trust	0.91	0.97	0.94	0.24	0.97						
3 Shared vision	0.77	0.77	0.62	0.28	0.30	0.79					
4 Ability ^a	0.85	0.89	0.81	0.24	0.27	0.74	0.90				
5 Opportunity ^a	0.76	0.81	0.67	0.35	0.36	0.76	0.85	0.82			
6 Motivation ^a	0.83	0.83	0.71	0.30	0.29	0.59	0.87	0.78	0.84		
7 Knowledge creation	0.90	0.9	0.51	0.25	0.28	0.67	0.66	0.71	0.61	0.72	
8 Innovativeness	0.88	0.89	0.67	0.14	0.18	0.57	0.5	0.55	0.43	0.61	0.82

^aOpportunity = opportunity to knowledge exchange; motivation = motivation to knowledge exchange; ability = ability to knowledge exchange and combine

Table 2. Path modifications in nested model comparison.

Model	Paths included in the models according to the testing sequence
Hypothesised model	All the paths as indicated in Figure 1
Control variables only model	Only the direct paths from control variables to innovativeness
Fully mediated model 1	All the paths in the hypothesised model + Opportunities to exchange → motivation to exchange
Fully mediated model 2	All the paths in the fully mediated model 1 + Opportunities to exchange → ability to exchange
Partially mediated model 1	All the paths in the fully mediated model 2 + Opportunities to exchange → innovativeness
Partially mediated model 2	All the paths in the partially mediated model 1 + Ability to exchange → innovativeness Motivation to exchange → innovativeness
Partially mediated model 3	All the paths in the partially mediated model 2 + Tie strength → knowledge creation Trust → knowledge creation Shared vision → knowledge creation
Partially mediated model 4	All the paths in the partially mediated model 3 + Tie strength → innovativeness Trust → innovativeness Shared vision → innovativeness

model is the best representation of the data and are considered to be an important part of assessing model fit (e.g., Anderson & Gerbing, 1988). The “incremental approach to SEM” (Cheng, 2001, p. 652) was applied to test these series of nested models. Table 2 summarises the path modifications made at each stage of the alternative model testing.

The control variables only model specified the direct paths from the control variables to innovativeness. This model was used as a base-line fit for assessing the incremental contribution of the additional paths in the theoretical model. The relationships tested in the control variables only model were based on the theoretical grounds clarified earlier. The fully mediated hypothesised model specified both the control variable paths and the set of paths hypothesised in the study. The fully mediated hypothesised model was compared with three partially mediated models following Seibert et al.

(2001). These partially mediated models assessed both the direct and indirect effects between the constructs. All the models included the control variable paths. Indirect effects based on multiple mediation were identified and tested by running 1000 bias-corrected bootstrap samples at 95% significance level. Given the sample size of 112, caution was exercised on analysis and therefore, a series of individual regressions tests and three individual structural equation models were performed in addition to the main hypothesised model testing to ensure the robustness of the analysis. All results were consistent.¹

4. Results

Table 3 reports the means, standard deviations and correlations among the study variables.

Both tie strength ($r = 0.20, p < 0.05$) and shared vision ($r = 0.47, p < 0.01$) are positively associated with innovativeness, yet trust is not significantly correlated with innovativeness ($r = 0.15, p > 0.05$). Tie strength, trust and shared vision are positively correlated with each other. Organisational social capital literature acknowledges this possible inter-relationship (Nahapiet & Ghoshal, 1998) but it is beyond the scope of this study. Therefore, future studies may consider addressing the examination of internal social capital dimensions’ interrelationship. Further, opportunity-motivation-ability factors are also positively associated with each other. From a methodological perspective, this study has examined the discriminant validity (Table 1) and in addition, performed a nested model comparison (Table 4) to address these conditions.

4.1. Hypothesised model

Hypothesised model did not fit the data well ($\chi^2 = 268.18, df = 24, p < 0.01; \chi^2/df = 11.17$; root mean square error of approximation [RMSEA] = 0.30 [90% CI = 0.28, 0.36]; comparative fit index [CFI] = 0.56; Adjusted goodness-of-fit index

Table 3. Mean, standard deviation and correlations among studied variables.

Variable	Mean	St. Dev.	1	2	3	4	5	6	7	8	9
1 Firm Size	108.64	279.37									
2 Firm Age	34.58	35.87	.60**								
3 Tie strength	4.86	1.16	-.22*	-.18							
4 Trust	5.42	1.41	.03	-.07	.21*						
5 Shared vision	5.68	1.05	-.05	-.19*	.31**	.25**					
6 Ability ^a	5.52	1.07	-.08	-.19	.38**	.33**	.70**				
7 Opportunity ^a	5.53	1.08	-.08	-.16	.38**	.27**	.60**	.85**			
8 Motivation ^a	5.77	1.17	-.11	-.17	.28**	.20*	.60**	.80**	.79**		
9 Knowledge creation	5.51	0.85	-.08	-.11	.31**	.27**	.56**	.60**	.60**	.53**	
10 Innovativeness	5.99	1.00	-.02	.00	.20*	.15	.47**	.43**	.51**	.39**	.54**

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

^aOpportunity = opportunity to knowledge exchange; motivation = motivation to knowledge exchange; ability = ability to knowledge exchange and combine

Table 4. Nested Model Comparison – Social Capital and Innovativeness Model.

Model	χ^2 (df)	$\Delta\chi^2(\Delta df)$	RMSEA	AGFI	CFI	NFI	SRMR	Comparison Sequence
Hypothesised model	268.18 (24)***	-	0.30	0.39	0.56	0.54	0.21	-
Control Variables only model	501.48 (33)***	233.30 (9)***	0.36	0.10	0.13	0.14	0.35	Control variables only model compared to hypothesised model
Fully mediated model 1	141.49 (23)***	126.70 (1)***	0.22	0.65	0.80	0.76	0.12	Fully mediated model 1 compared to hypothesised model
Fully mediated model 2	48.60 (22)***	219.59 (2)***	0.10	0.82	0.95	0.92	0.06	Fully mediated model 2 compared hypothesised model
Partially mediated model 1	38.69 (21)**	9.91 (1)***	0.09	0.84	0.97	0.93	0.04	Partially mediated model 1 compared to fully mediated model 2
Partially mediated model 2	29.74 (18)**	18.86 (4)**	0.08	0.85	0.98	0.95	0.03	Partially mediated model 1 compared to fully mediated model 2
Partially mediated model 3	28.98 (16)**	19.61 (6)***	0.09	0.84	0.98	0.95	0.03	Partially mediated model 2 compared to fully mediated model 2
Partially mediated model 4	23.93 (13)**	24.66 (9)***	0.09	0.84	0.98	0.96	0.03	Partially mediated model 3 compared to fully mediated model 2

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

[AGFI] = 0.39; normed fit index [NFI] = 0.54; standardised root mean square residual [SRMR] = 0.21). Utilising chi-square test of difference (Bentler & Bonett, 1980), the hypothesised model was compared with several nested models (Table 4).

The first comparison showed that the hypothesised model provided a significant better fit than the control-variables only model ($\Delta\chi^2 = 233.30$, $\Delta df = 9$, $p < 0.01$). Given the less fit in the hypothesised model with the data, two new theoretically valid and acceptable paths were added based on the modification indices, one at a time as nested models (fully mediated models 1 and 2) as indicated in Table 2. These fully mediated models 1 and 2 were then compared with hypothesised model. The change in chi-square test (Table 4) showed that alternative model 2 was significantly better than hypothesised model ($\Delta\chi^2 = 219.59$, $\Delta df = 2$, $p < 0.01$) and it fits data better and more parsimonious. Hence, fully mediated model 2 was retained ($\chi^2 = 48.59$, $df = 22$, $p > 0.05$; $\chi^2/df = 1.84$; RMSEA = 0.10 [90% CI = 0.04, 0.13]; CFI = 0.97; AGFI = 0.82; NFI = 0.92; SRMR = 0.06) and compared with the partially mediated models 1–4.

Change in chi-square tests (see Table 4) revealed that partially mediated models 1–4 were significantly better than the fully mediated model 2 and were more parsimonious. Specifically, this nested model comparison indicated that partially mediated model 4 is better fitting the data and more parsimonious ($\Delta\chi^2 = 24.66$, $\Delta df = 9$, $p < 0.01$) among all those partially mediated models ($\chi^2 = 23.93$, $df = 13$, $p > 0.01$; $\chi^2/df = 1.84$; RMSEA = 0.09 [90% CI = 0.03, 0.14]; CFI = 0.98; AGFI = 0.84; NFI = 0.96; SRMR = 0.03). Hence, partially mediated model 4 was retained as the best fitting model and interpreted it below to examine the hypothesised relationships.

Examination of the standardised parameter estimates indicated that six of the nine hypothesised relationships were significant and in the predicted directions (see Figure 2) when the control variables were accounted for.

Hypothesis 1 positively related tie strength to opportunities to exchange. The statistically significant parameter estimates ($b = 0.20$, $p < 0.05$) indicated support for hypothesis 1. This indicates that the stronger the internal ties, the more there are opportunities to knowledge exchange. Hypotheses 2_a and 2_b positively relate trust to opportunities to knowledge exchange (H_{2a}) and motivation to knowledge exchange (H_{2b}). A statistically significant relationship could not be found for any of these relationships and hence do not provide support for hypotheses 2_a and 2_b ($b = 0.09$, $p > 0.05$) and ($b = 0.03$, $p > 0.05$). Hypotheses 3_a and 3_b were supported as statistically significant parameter estimates were found for the paths between shared vision and opportunities to knowledge exchange ($b = 0.51$, $p < 0.01$) and ability

to knowledge exchange ($b = 0.29, p < 0.01$). Social enterprises with a high level of shared vision among the organisational members tend to have more opportunities to knowledge exchange among organisational members and reported to have higher ability to knowledge exchange.

Hypotheses 4, 5 and 6 positively relate opportunity (H_4), motivation (H_5) and ability (H_6) to knowledge creation. Statistically significant parameter estimates were found only for hypothesis 6 ($b = 0.57, p < 0.01$) supporting hypothesis 6 and failed to support hypotheses 4 and 5 ($b = 0.23, p > 0.05$) and ($b = 0.16, p > 0.05$), respectively. Those social enterprises with members who have higher ability to knowledge exchange tended to create more knowledge. The results support hypothesis 7 ($b = 0.32, p < 0.01$) confirming that higher knowledge creation level is associated with a higher level of firm innovativeness.

None of the control variables were associated with innovativeness ($p > 0.05$). The explained variance in the innovativeness was greater in the partially mediated modified model 3 than in the control variables only model. The partially mediated model 4 explained 44% of knowledge creation and 38% of innovativeness.

5. Discussion and conclusions

The current study extends the innovativeness concept into a new, previously overlooked application area, the Australian social enterprise context. Previous studies

have focused largely on the development of conditions that are conducive to innovation and innovativeness (Damanpour, 1991; Kyrgidou & Spyropoulou, 2013; Subramanian & Nilakanta, 1996) and the determinants of firm innovativeness (e.g., Dunne, Aaron, McDowell, Urban, & Geho, 2016; Eggers, Kraus, & Covin, 2014; Kach, Busse, Azadegan, & Wagner, 2016; Kyrgidou & Spyropoulou, 2013; Parra-Requena et al., 2015) and its effect on firm performance (e.g., Dibrell, Craig, & Neubaum, 2014; Kyrgidou & Spyropoulou, 2013) in technological firms, small businesses and other commercial sectors (Rubera & Kirca, 2012) and social entrepreneurship behaviours in social enterprises (Hoogendoorn, 2016). It is important to understand not simply what is necessary to foster innovativeness but also the mechanism of how it develops within the complex social enterprise setting. Therefore, this study looked to expand on the literature and explain the ways innovativeness manifests within and pervade throughout complex social enterprise context. The study results capture opportunity-motivation-ability and knowledge creation as necessary means for driving social enterprise innovativeness and offer an additional lens to view social enterprises' innovative behaviour.

Further, the current study rigorously demonstrates the role played by the opportunity-motivation-ability as the "mechanism of knowledge exchange" (Argote & Ingram, 2000) which has been overlooked in previous studies. Opportunity-motivation-ability framework has been incorporated either partly or fully in the discussions

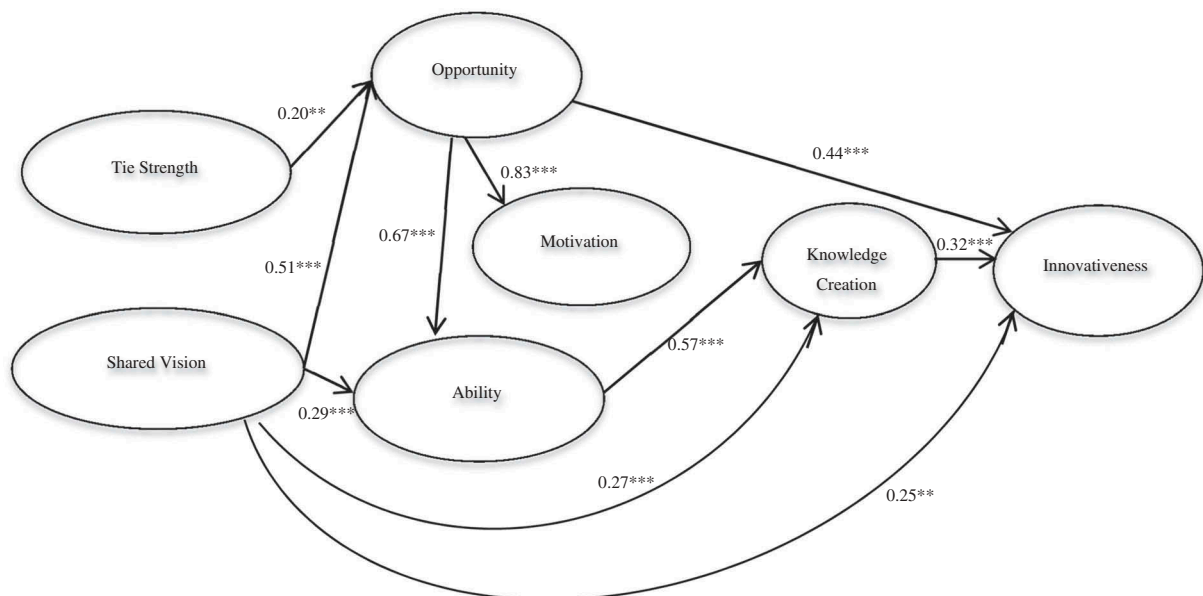


Figure 2. Results of the structural model: OSC and innovativeness.

Fit Indices: $\chi^2 = 23.93, df = 13, p > 0.01$; $\chi^2/df = 1.84$; RMSEA = 0.09 [90% CI = 0.03, 0.14]; CFI = 0.98; AGFI = 0.84; NFI = 0.96; SRMR = 0.03

Notes: ¹*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; All the regression path coefficients are in standardised form.

²Insignificant paths have been removed from the model.

³Some of the paths have been specified during the model testing in addition to the hypothesised paths

⁴None of the paths related to relational social capital are statistically significant and hence not showing in this model.

⁵Opportunity = opportunity to knowledge exchange; motivation = motivation to knowledge exchange; ability = ability to knowledge exchange and combine

on knowledge governance (Huang, Chiu, & Lu, 2013); knowledge sharing and innovative work behaviour (Radaelli et al., 2014); performance linking to absorptive capacity (Elbaz, Agag, & Alkathiri, 2018), human resource management practices (Beltrán-Martín & Boullusar, 2018; Bos-Nehles & Van Riemsdijk, 2014) and student engagement (Jepson & Ryan, 2018). Further, these factors are collectively recognised as a mechanism of learning from failures (Dahlin, Chuang, & Roulet, 2018) and corporate entrepreneurship execution (Turner & Pennington, 2015). Current study is the first to include these factors in the social capital and innovativeness relationship to test the previously ignored mediatory processes. Our results shed new light on the role played by opportunity-motivation-ability factors and opened a new conceptual integration to explain the mechanism behind social capital and firm innovativeness. This is significant given the focus of literature on social capital as a black box of producing innovation without paying attention to the mediatory processes and capabilities needed to transfer the resources embedded in social capital (Filieri & Alguezaui, 2014) and inconclusive and inconsistent results of antecedents of firm innovativeness (Cho & Pucik, 2005).

As a managerial implication, the critical role played by opportunity-motivation-ability factors suggests the social enterprise managers the need to provide the employees with adequate and suitable opportunities to knowledge exchange and to develop employee abilities to knowledge exchange and combine. For knowledge management researchers, this finding suggests the need to consider the interrelationship among the three factors in modelling knowledge creation antecedents. Our finding of a direct effect of cognitive social capital on innovativeness informs the social enterprise managers the need of having common frames of references by way of a shared vision which would ultimately avoid misunderstandings among the members enhancing the openness to innovative ideas. The implication of this finding for organisational social capital scholars is the need to consider all the three dimensions in social capital conceptualisation.

As with all studies, this study is not free from its limitations. Future research could advance the findings of this study by empirically testing them in a large sample context. One of the main limitations is that the small sample size although it yields to a comparable response rate to the previous Australian studies conducted in the field. Therefore, testing the suggested theoretical model with a large sample may advance the findings of the study in the future research. The second limitation of this study is that the data are based on a cross-sectional explanatory survey design. Innovativeness is essentially a behavioural orientation and cross-sectional studies cannot fully capture the effect of temporal growth effects of the variable.

Therefore, as Subramanian and Nilakanta (1996) suggested, any measure of innovativeness should be captured through this temporal effect. Hence, a longitudinal study of innovativeness of social enterprise would warrant substantial advancement of understanding of the concept and the research methodology. In addition, the social capital dimensions found to be correlated with each other and hence, the future studies can test the effects of the interrelationship among these three dimensions. Future studies should consider incorporating possible moderators to the hypothesised model of the study. For instance, the centrality of social enterprise social mission tend to have a moderating effect on the organisational processes and outcome relationships (Gamble & Moroz, 2014).

Note

1. Results are available from authors upon request.

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Appendix A: Scale Items with Factor Loadings

Factor Items – Innovativeness ¹	Factor Loadings
In our organization management actively seeks innovative ideas.	0.82
In our organization innovation, based on research results, is readily accepted.	0.83
In our organization innovation is readily accepted by management.	0.67
In our organization innovation is encouraged.	0.92

¹One item with Cronbach's Alpha <0.7 was removed from the scale following the pilot study and not presented here

Factor Items – Organizational Social Capital ²	Factor Loadings
Structural Social Capital:	
In our organization, we spend significant time together in social situations	0.86
In our organization, we maintain close social relationships with one another	0.98
In our organization, we know colleagues of the other functional departments on a personal level	0.67
Relational Social Capital:	
Employees in our organization have confidence in one another	0.92
Employees in our organization show a great deal of integrity	0.71
Cognitive Social Capital:	
In our organization, all of us share the same ambitions and vision for the organization	0.65
In our organization, all of us enthusiastically pursue collective goals and mission	0.95

²Items with low factor loadings and cross loadings were removed after the exploratory factor analysis and hence, not presented here

Factor Items – Knowledge Creation ³	Factor Loadings
Employees of our organization are given abundant training to assist personal interactions and communications	0.66
Employees of our organization are provided with on-the-job training to help them exchange and refine their ideas	0.68
Employees of our organization are encouraged to combine or recombine ideas to solve problems or create opportunities	0.70
Employees of our organization are encouraged to absorb, assimilate, and recombine information from different sources (internal and external)	0.75
Employees of our organization are encouraged to share and learn from their experiences and failures	0.84
Employees of our organization are encouraged to combine external and internal knowledge to generate new ideas	0.86
In our organization senior managers emphasize information exchange and sharing in our organization	0.66

³Two items from the original scale were removed during the confirmatory factor analysis due to small factor loadings (less than 0.60)

Factor Items – Social capital activators	Factor Loadings
Ability to exchange and combine knowledge:	
Employees of our organization are proficient at combining and exchanging ideas to solve problems or create opportunities.	0.79
Employees of our organization do a good job of sharing their individual ideas to come up with new ideas, products, or services.	0.85
Motivation to exchange knowledge:	
Employees of our organization see benefits from exchanging and combining ideas with one another.	0.77
Employees of our organization believe that by exchanging and combining ideas they can move new projects forward more quickly than by working alone.	0.70
Employees of our organization are willing to exchange and combine ideas with their co-workers.	0.71
Opportunities to exchange knowledge:	
Employees of our organization at the end of each day, feel that they have learned from each other by exchanging and combining ideas.	0.82
Employees of our organization often exchange and combine ideas to find solutions to problems.	0.84