

# Exploring Knowledge Exchange and Social Capital Within agri-food Business Support Programmes

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**Abstract:** Developing social capital and intellectual capital is critical to enhancing knowledge management (KM) and innovation. Social capital relates to KM as it provides access to new sources of knowledge, with each dimension of social capital having different effects on knowledge exchange. The amount of knowledge gathered over time and the use of communication technologies is essential to understand the role knowledge plays in social capital innovation, also referred to as intellectual capital. Social capital and intellectual capital are regarded as factors needed to enhance KM amongst agri-food business support programmes. Limited research to date has explored how intellectual capital is linked to each dimension of social capital. Current qualitative research being conducted in this PhD aims to contribute to this body of knowledge. This paper will include preliminary results from pilot study research. Initial interview and observation findings suggest that bonding social capital and intellectual capital lead to enhanced knowledge exchange and therefore increased innovation capabilities. The findings from this research will be beneficial to agri-food businesses, agriculture support programmes, training programmes, farmers, and governing bodies and will aid understanding into social capital and its benefits for knowledge exchange and innovation.

**Keywords:** Social Capital; Knowledge Exchange; Innovation; Agri-food business; Intellectual Capital

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## 1. Introduction

The value of social capital for innovation has been widely acknowledged within the literature (King et al., 2019; Tura and Harmaakorpi, 2005; Fine, 2001). It has been identified that social capital leads to economic growth, innovation capabilities, knowledge exchange, regional development, and improved trust (Hasan et al., 2020; Lins et al., 2017; Lewis, 2010; Smith et al., 2017; Nahapiet and Ghoshal, 1998). Despite this, limited research has explored how social capital is developed in different contexts (Cofré- Bravo et al., 2019; Murphy et al., 2016). In particular, it could be suggested that farmers who are often located in rural contexts may have less opportunities to develop their social capital and innovation capabilities due to locational based disadvantages, lack of support or restrictions of freedoms (Tsai and Ghoshal, 1998; Portes, 1998). Within rural regions, business support programmes have been identified as a key mechanism to improve and create social capital relationships using peer-to-peer learning and advisory support (Faure et al., 2019; Garforth et al., 2003). However, much remains unknown on how business support programmes develop social capital, and how this consequently leads to increased innovation capacity and/or knowledge exchange (Fisher, 2016; Murphy, 2016). This calls for more research which explores how different types of social capital (i.e., bridging, bonding and linking) can have value for farmers and on-farm innovation (Cofré-Bravo et al., 2019). To contribute to the body of knowledge in this field, the aim of this paper is to investigate the role that business support programmes have in encouraging social capital and collaborative approaches within agri-food and farming specifically.

This research is part of a larger PhD study and aims to contribute new insights into how social capital is developed in the rural, farming contexts and the mediating role social capital might have in relation to farmer innovation capabilities. The paper will begin by discussing the role of social capital for innovation, then the role of business support programmes will be explored. A conceptual model will then be presented which forms the basis of the empirical analysis. The findings of a pilot study will then be presented, and the key contributions will be outlined.

## 2. Theoretical Development

### 2.1 Social capital and innovation capabilities

From the literature, there is no one clear, undisputed meaning of social capital, where most definitions are conceptual and complex in nature (Lang and Fink, 2019) and challenges exist in defining the elements of social capital (Bhandari and Yasunobu, 2009). Definitions vary depending on the discipline and conceptual nature of social capital in practice. The concept is used at the micro and macro levels, spanning across disciplines such as sociology, economics, management, political science, and health science (Bernardi, Huinink and Settersten, 2019).

Definitions focus on relations between actors (Teilmann, 2012), the structure of relations and types of linkages (Clark, 2010). Furthermore, authors identify different types and characteristics of social capital. Putnam's (1995, pp.67) definition is widely cited where social capital is defined as:

*"Features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, pp.67).*

This definition is deemed to be fitting towards this research, where business support programmes aim to work collaboratively with agri-food business owners to enhance their capabilities for creating mutual benefit (Levdokymov et al., 2020).

These actors then create social capital through various forms (macro, meso, micro) and on different scales (bonds, bridges, linkages) which work collectively with types of social capital (structural, cognitive, relational). Each type of social capital has key aspects, for example, structural social capital has aspects of network ties, structural holes, and tie strength. These factors can lead to varying levels of social capital achieved (Aral and Walker, 2014).

Research identifies numerous outcomes of social capital, which can be both positive and negative and occur at different levels. Social capital must have well established foundations in order to achieve positive outcomes (Lewis, 2010). Social capital can support rural areas in regional development through social capital stimulation. A major outcome of social capital is economic growth. This outcome is recognised by the World Bank and regarded as a benefit for stimulating social capital (Dasgupta, 2000; Woolcock and Nararyan, 2000; Durlauf and Fafchamps, 2004).

Knowledge exchange is also achieved through accumulation of social capital and intellectual capital. This is considered the most important resource for agri-food businesses to stay competitive and create new opportunities (Grant, 1996). However, transferring knowledge successfully can be difficult due to a variety of factors (Easterby-Smith, Lyles, & Tsang, 2008). Information is assumed to circulate through social ties where an actor gains access to resources through social interaction (Tsai and Ghoshal, 1998). Social interaction, also known as structural social capital, builds and forms social ties to increase contacts (Lee, 2009). Social interactions positively affect knowledge exchange, enhancing the learning network. Thus, the greater network social interaction, the greater knowledge exchange (Lefebvre et al. 2016). Knowledge exchange will be further discussed in section 2.2 below.

Innovation capability is deemed an outcome of social capital and is defined as an individual's potential to innovate (Saunila and Ukko, 2012). The ability to innovate is critical to the growth, success and competitive advantage of firms and individuals (Muller et al., 2005; Ukko et al., 2016). Strategy and innovation activities harvest a shared vision of innovation, essential in creating innovation capabilities (Skarzynski and Gibson, 2008). These capabilities include transforming ideas into products, processes or systems which will ultimately provide benefits (Lerro et al., 2009). Innovation capabilities have been defined as "the ability to mould and manage multiple capabilities" (Lawson and Samson, 2001, pp. 380).

Other outcomes of social capital include sustainable development, regional development, and intellectual capital. However, social capital does not always produce desirable outcomes, the dark sides of social capital can also occur (Putzel, 1997; Zmerli, 2010). Negative outcomes of social capital include involvement in criminal groups or endangering an individual's opportunities (Lewis, 2010; Zmerli, 2010).

## **2.2 Knowledge transfer**

Knowledge exchange is seen as an outcome of social capital but is also needed for programmes, advisors, and farmers to transfer knowledge throughout engagement activities. Once knowledge has been transferred amongst actors via social capital, innovation capability occurs, this can happen in various ways through product, service, process, market, and management practices (Rajapathirana and Hui, 2018).

Knowledge exchange is an important part of social capital. Intellectual property is a valuable economic resource providing the opportunity for support programmes and actors to improve their knowledge base, increasing competitive advantage (Tsai and Ghoshal, 1998; Subramaniam and Youndt, 2005). Enhanced knowledge exchange amongst actors and networks can ultimately lead to coordination of new activities, introduction of

products to the market or new innovative technologies (Boschma and Ter Wal, 2007). According to Scharmer (2001), there are three forms of knowledge, referred to as explicit, tacit, and potential. Explicit knowledge is thought of as knowledge that is easy to share or write down, implicit knowledge is considered as skills that are transferable from one network to another, while tacit knowledge is gained from personal experiences and is the most difficult to express (Alexander, 2018).

The literature on knowledge exchange and social capital has considered how knowledge flows through network actors and how new knowledge is introduced within each network (Nahapiet and Ghoshal, 1998; Adler and Kwon, 2002; Moran, 2005). In exploring knowledge exchange from a social capital perspective, a network approach is taken, arguing that social relationships and networks can influence the ability to access, transfer and apply knowledge, leading to absorptive capacity (Díez-Vial and Montoro-Sánchez 2014).

### **2.3 The role of rural advisory services**

Rural advisory services vary depending on the management of each project, objectives and content provided (Lamm et al., 2017). Various studies have indicated a level of competition as opposed to collaboration and coordination between rural business support programmes (Faure et al., 2019). It is critical for business support programmes to help shape social capital to aid farmers to develop their networks, which can then in turn aid knowledge transfer and on-farm agriculture innovation (Cofré-Bravo et al., 2019). Trust is an important characteristic between actors, knowledge exchange and innovation to ensure the interaction is smooth (Cerf et al., 2017; Faure et al., 2019; Rijswijk and Brazendale, 2017).

Advisors' roles, characteristics and skills vary within each support programme. Advisor characteristics include being a good communicator, possessing technical knowledge and analytical and persuasion skills, relationship focused and having initiative. However, each advisor has different characteristics and skills, making it difficult for a farmer to adapt and build relationships with new advisors (Hejnowicz et al., 2016).

Farmers can be categorised as: Pro-activists, do-it-yourselfers, wait-and-see-ers and reclusive traditionalists (Klerkx et al., 2017). These categories are used to describe adoption levels, for example innovators and early adopters tend to be more proactive and likely to adapt well to change. However, these categories do not capture the advisor/client relationship and the various ways farmers can engage with advice and information by using social capital (Klerkx et al., 2017).

## **3. Conceptual Framework**

Based on a review of relevant literature on social capital, intellectual capital, knowledge exchange and business support programmes, and the application of this to a rural context, an initial conceptual framework (Figure One) has been developed. This framework will form the basis of empirical research into the presence of social capital in advisor-client relationships.

As can be seen in Figure one, the knowledge transfer process centres around rural advisory programmes, and the interaction between advisor and farmer/client actors. The entire framework sits within the AKIS (Agricultural Knowledge and Innovation Systems) ecosystem. Programmes, advisors and farmers are at the heart of the innovation system and are needed to support modernisation, innovation, and knowledge flows (D'avino, 2019). The AKIS concept encourages a systematic view of complex structures which make up a functioning knowledge exchange network among various actors in society (Knierim et al., 2015). The actors within AKIS interact to generate various forms of social capital. Consideration must also be given to the antecedents and challenges in developing social capital and innovation capabilities and possible outcomes, listed outside the ecosystem. These outcomes have been discussed earlier in this paper (see section 2.1).

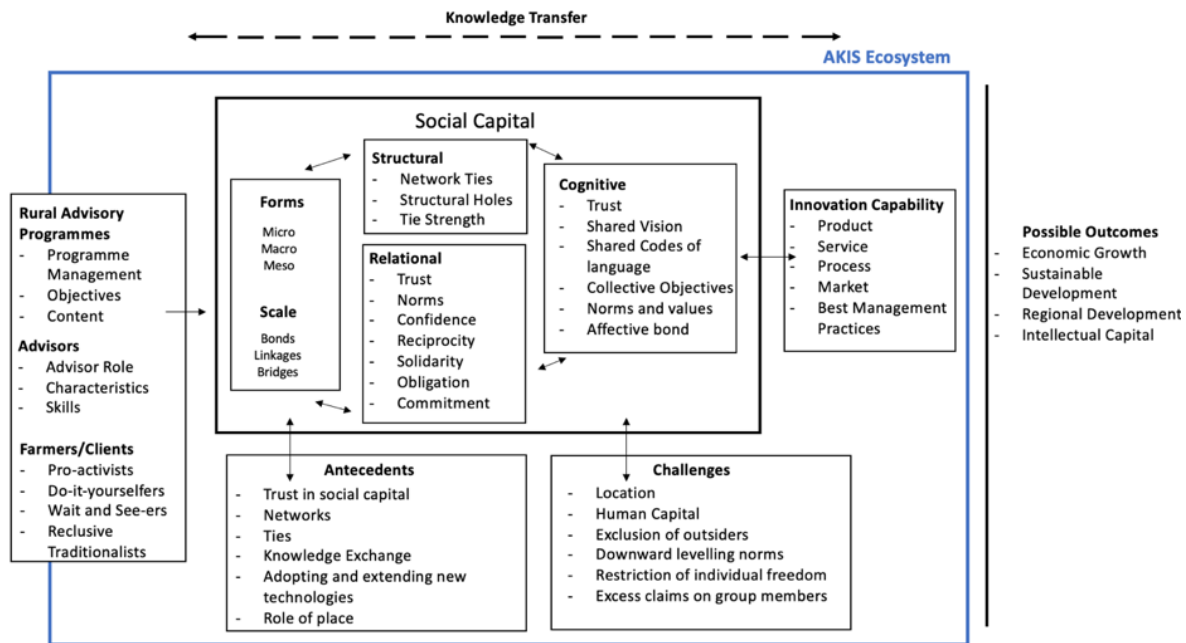


Figure 1: Conceptual Framework

#### 4. Method

This research employs a qualitative, inductive methodology to achieve the research aim (to contribute to new insights into how social capital is developed in rural, farm contexts and to analyse the mediating role social capital might have on farmers innovation capabilities). A qualitative exploratory inductive approach is adopted due to a lack of prior research into the role of farmers and advisors in developing social capital and knowledge exchange (Kepes and McDaniel, 2013). Exploratory research is useful for problems which are not easily defined (Saunders et al., 2012). Jebb et al. (2016) identifies that inductive research is useful for theory building in underexplored contexts. The initial data collection to date has involved semi-structured interviews, observations, and document analysis. These tools are triangulated to increase quality and validity of data (Golafshani, 2015; Carter et al., 2014). This project is part of a larger PhD study which will use multiple case studies, but for the purpose of this paper, the results from a pilot study are presented.

The pilot study selected a European Partnership Programme (EIP) based on the profile of respondents and programme aims and objectives. Further selected cases will be heterogeneous, while sharing similar macro-environmental conditions within a clearly defined institutional and geographic context (Miller, 2011; Linton and Kask, 2017). This will facilitate comparison and theory development for findings to be “information rich” (Saunders et al., 2016).

A breakdown of interview types and numbers can be found in Table one. Interviews were held with participants, co-ordinators, funders, and other actors within the AKIS Ecosystem of the programme. This provided a holistic view of the case. Interview questions were influenced by the conceptual framework, structured around topics relevant to the study. This enabled the interviewer to obtain more in-depth knowledge and provide valuable data (Saunders et al., 2016). The semi-structured approach allows various themes to be discussed and allows flexibility to add further questions (Yin, 2014). Ideally, interviews will be carried out in a longitudinal approach, however, due to the scattered timeframes of programmes, repeat interviews and critical incident technique may be used.

Table 1: Interview Structure

Interviewee Type	Number of interviewees
Programme participants	5
Programme co-ordinators	2
Programme funders	1
Other actors/stakeholders (e.g., agricultural trade bodies).	1

#### 4.1 Data analysis

Data analysis was conducted at the pilot individual case level, becoming familiar with the sets of data before a cross-case pattern approach will be applied within the main study. This method was chosen as it mobilises knowledge, compares cases and produces new knowledge (Khan and VanWynsberghe, 2008). Gioia et al's. (2014) coding process is followed, resulting in first order categories, second order themes and aggregate dimensions, providing clarity on data structure and ensuring information richness. NVivo is used to assist with management and analysis of data.

### 5. Discussion of findings

Interviews from the pilot study were recorded, transcribed, and coded both manually and through the use of NVivo 12. Open inductive coding was used which resulted in the researcher extracting empirically driven codes from the transcription. This has been outlined in a codebook and can be found in Table 2

**Table 2:** NVivo Codebook

Name	Description	Files	References
Advisor knowledge	Advisor knowledge of Programme	6	6
Level of trust	Perceived level of trust with advisor-farmer	4	4
Negative level of trust for advisor	Unlikely to accept advice from advisor	3	3
Positive level of trust for advisor	Likely to accept advice without question	3	3
Resistance	Accept advice with caution or resistance, subject to their own research	3	3
Covid-19 implications on network building	Covid impacted the Programme in a negative way	2	2
Levels of support	Participants felt levels of support decreased	3	3
Network building	Participants felt Covid-19 impacted network building and relationships	3	3
Outcomes of Programme relationships	Outcomes achieved from the Programme	2	2
Bonding social capital	Increased bonding social capital, friends, and acquaintances	4	4
Improved trust	Improved trust for the advisor over the period of the Programme	5	5
Innovation capabilities	Increased level of innovation shown within the Programme	3	4
Participant Innovation levels	How likely the participant is to innovate	6	6
Closed to innovation	Unlikely to innovate, laggard	2	2
Open to innovation	Likely to innovation, innovator	4	4
Struggle with innovation	Would like to innovate but struggle with adoption to technology	3	3
Peer-to-peer learning	Learning from other participants rather than the advisor	5	5
Importance of farm events and workshops	Preferred on farm physical events to see another participant's farm	5	5
Learning from participants	Enjoy listening and learning from others	4	4
Social value	Attend events and workshops for the social value the Programme provides	4	4

The findings resulted in the identification of five key themes, namely, advisor knowledge, Covid-19 implications on network building, outcomes of programme relationships, participant innovation levels and peer-to-peer learning. Each of the themes and corresponding subthemes were found to have varying impacts on knowledge exchange, the building of trust between programme advisor and participants, and innovation adoption levels. Themes, subthemes and supporting quotes have been outlined in Figure 2.

The key findings from the pilot study is consistent with themes identified from the literature review, and which informed the conceptual model (figure one). The findings address gaps in knowledge around the various types of social capital and their value for innovation. Murphy et al., (2016) and Fisher (2016) describe the uncertainty of business support programme's ability to develop strong social capital whereas these pilot study findings indicate that 3 participants have developed close bonding relationships within the programme, 4 have established a trustworthy relationship with their advisor and 3 have increased their innovation capabilities from the programme. The findings begin to address gaps in knowledge on how bonding, linking, and bridging social

capital can lead to innovation (Cofré-Bravo et al., 2019). They reveal the various types of relationships farmers have with their advisors, ultimately leading to intellectual capital. Further exploration is needed in the main study to fully understand what types of innovation are adopted from various categories of social capital.

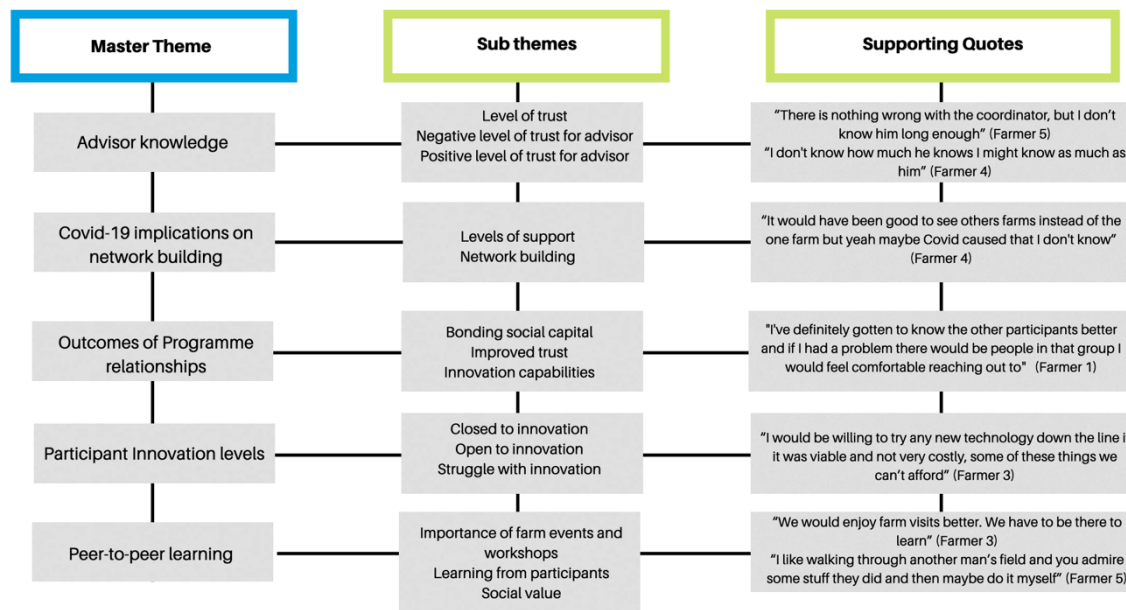


Figure 2: Outline of themes, subthemes and supporting quotes for pilot study.

## 6. Conclusion

This aim of this paper was to investigate the role that business support programmes in developing social capital and collaborative approaches among farmer clients. The paper considers the accumulation of social capital and intellectual capital and its effect on knowledge exchange. The paper has presented a conceptual framework and pilot study findings, which will inform further data collection and investigation. In the next stage of the research, six support programmes in the AKIS network (in Northern Ireland and the Republic of Ireland) will be studied. Data collection methods will again include interviews and observations with programme participants and brokers/advisers of support programmes along with documentary analysis.

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