

## **Innovation networks and the institutional actor-producer relationship in rural areas:**

### **The context of artisan food production**

#### **Abstract**

This paper takes a multiple theoretical perspective, utilising concepts from the knowledge exchange and the rural, social networks literatures to explore artisan food enterprise engagement with institutional networks for innovation. A qualitative methodology is adopted, involving semi-structured interviews and group discussions with producers and institutional actors, and participant observation. The findings highlight that while informal networks, including business networks, family associations and international sources play a more important role in innovation for artisan food firms than institutional networks, institutional networks play a critical role in developing social capital and knowledge exchange among producers and in acting as a bridge to informal, embedded networks for these enterprises. The findings demonstrate how sectoral contextual factors shape interactions in the institutional actor-producer relationship, and how they impact upon involvement in institutional networks and in turn facilitate and restrict innovation in this context.

**Keywords:** artisan; agri-food; rural; knowledge exchange; social capital, institutional.

## 1. Introduction

The valuable contribution that artisan enterprises make within rural and peripheral regions to local food production, including the enhanced reputation of regions for their food expertise and culture, has been widely acknowledged (Ilbery and Kneafsey, 2000; Murdoch et al., 2000; Hinrichs and Welsh, 2003; Marsden and Smith, 2005; Tregear et al., 2007; Scott, 2010). Artisan<sup>1</sup> or speciality food enterprises are a central component of the discussion in the growing agri-food systems literature around ‘alternative food networks’ (AFNs), ‘short supply chains’ and the ‘turn to quality’ since the turn of the last century (see for instance Murdoch, 2000; Murdoch et al., 2000; Winter, 2003; Marsden and Smith, 2005; Tregear, 2011). This literature has explored the territorial embeddedness of food systems, with a focus on AFNs which are associated with concepts of quality, trust and place to characterise this phenomenon as a turn towards the re-localisation of food (Moragues-Faus and Sonnino, 2012).<sup>2</sup> The body of knowledge around AFNs has developed to incorporate various theoretical perspectives (Tregear, 2011). The importance of network building within this context has been highlighted by authors such as Ilbery and Kneafsey (2000), and the network concept has assisted understanding of the diverse forms of rural development (Murdoch, 2000). The network perspective recognises the myriad of connections between actors and institutions occurring in different spaces and places (Midgley, 2010). However, while producer-consumer ties have received significant attention, relations and power dynamics between producers (and other supply chain actors) remain underexplored (Chiffolleau, 2009;

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<sup>1</sup> Food artisan products are distinguishable from those produced by mainstream producers, through their scale, the association of the materials and methods with their locality of origin and their core attributes of taste and appearance (Autio et al., 2013; Sage, 2003).

<sup>2</sup> The term alternative food networks (AFNs) is used here to describe emerging networks of producers, consumers and other actors that embody alternatives to the conventional, more standardised industrial, or global modes of food supply (Renting et al., 2003), where the production and consumption of food are more closely connected in spatial, economic and social terms. Examples that have been studied include localised and short food supply chains, farmers’ markets, community supported agriculture (CSA), and community gardens and organic schemes (Tregear, 2011).

Bowen, 2011), and there have been calls from food systems scholars for a greater examination of the context and environment (cultural, ecological, political and economic) within which AFNs operate (Tregear, 2005; Sonnino 2007; Bowen, 2011).

The themes of network interactions and relationships (Murdoch, 2000; Tregear, 2011; Kelliher et al., 2014; Tregear and Cooper, 2016), and the interaction between the local environment and firm dynamics (Massard and Autant-Bernard, 2015) have been discussed within the rural studies domain more broadly. Within rural economies, firms are more likely to be limited in terms of market reach with a much greater reliance on local markets (Mitchell and Clark, 1999; Galloway and Mochrie, 2006). Thus, networks, involving institutional actors, such as government support agencies and third level institutions, are critical to successful and sustainable rural development (Terluin, 2003; Virkkala, 2007). However, the role of institutional support in aiding network development in rural agri-food networks is not clear and, apart from some valuable insights provided by a very small number of studies (Tregear, 2005; Alonso and Bressan, 2014), little is known about how locally embedded artisan food enterprises engage in networks for innovation, and how their operating environment shapes network development. Therefore, knowledge of the sectoral context shaping artisan food network development and innovation is limited. However, the rural studies and innovation literatures have highlighted several characteristics worth noting. Firstly, artisan producers would appear to be driven by a mix of purely lifestyle oriented goals (principled, ideological) and growth ambitions that are more attuned to commercial opportunities (Tregear, 2005). Secondly, they have demonstrated a lack of within-sector networking and collaboration (Alonso and Bressan 2014; Tregear 2005), restricting their ability to avail of knowledge sources for increasing innovativeness. Thirdly, artisan food producers may be associated with incremental as opposed to radical type innovation,

involving the development of products in response to changing market conditions and local demand (Uddin, 2006); reflecting the nature of innovation in the food sector more generally (see for instance Avermaete et al., 2003; Capitanio et al., 2009).

Thus, this paper seeks to explore how artisan food enterprises engage with institutional support networks for innovation. The geographical context for the study is Northern Ireland and the study will explore a number of research questions in relation to artisan food production based in rural locations across the region, operating predominantly through AFNs.<sup>3</sup> Northern Ireland represents a peripheral economy which consists heavily of small and micro sized enterprises, particularly within the food sector and within largely rural areas. It has a small but expanding base of artisan food production, which has been stimulated by increasing consumer demand for specialist, local food products (Intel, 2012).

Drawing upon ideas from the literature on knowledge exchange and social networks, we seek to explore producer and institutional actor constructions of their network building roles, activities and involvement and use these narratives of lived experiences to offer valuable insights into actor behaviour in AFNs (Tregear, 2011). Relational aspects around the nature and dynamics of trust, cooperation and reciprocity in these network forms will be explored in relation to the impact on actor behaviour and network outcomes. Specifically, the study addresses the following key research questions:

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<sup>3</sup> We use the term 'region' here in relation to Northern Ireland as a sub region of the United Kingdom. The term 'local' denotes the sourcing and supply of food produce predominantly through AFNs within the Northern Ireland region as a whole. However, we recognise the difficulty in viewing 'localness' in simple spatial relations terms, where the appeal of local and regional products can extend beyond the local market (Marsden et al., 2000; Hinrichs, 2003). We consider localised food systems to be associated with a set of attributes that reflect a high degree of social embeddedness and positive, respectful and non-instrumental social relations (Hinrichs, 2000).

RQ1: How do actor roles and relations, and dynamics of trust, cooperation and reciprocity, influence the formation and development of institutional innovation networks within this context?

RQ2: How do producers and institutional actors construct and value the institutional actor role in network development?

The paper now proceeds with a discussion of the theoretical framework for the study, which will utilise concepts from knowledge exchange and social networks to interpret the nature of network development and the institutional actor-producer relationship in the artisan food context. This is followed by the research methods, the case context, and then presentation of the results. Finally, we provide a discussion of the results and offer conclusions, suggestions for future research, and practical implications.

## **2. Theoretical development**

This paper will apply a multiple theoretical perspective, utilising ideas from the knowledge exchange and social networks literatures, to investigate both the macro level of network structure and the micro level of dyadic interactions, as called for in previous studies (see for instance Slotte-Kock and Coviello, 2010; Iturrioz et al., 2015), and in response to calls that theory should include both the structure of the network and the interactions between actors, how and why they form and how they may be managed over time (Granovetter, 1985; Burt, 1992; Hoang and Antonic, 2003). The knowledge exchange literature, and specifically the open innovation concept, allows consideration of the wide variety of networks which small firms may utilise for innovation purposes. The social networks literature, the social capital concept, and the themes of trust and reciprocity, where attention is given to the

structure of the network and the relational dimension, or interactions between actors, has value here in explaining the relational dynamics, the nature of network ties, how and why the networks form and how they may be managed over time.

### *2.1. Knowledge exchange for innovation*

The innovation discourse has widened beyond narrow technical definitions to that of more inclusive and organisational approaches to innovation (Chesbrough, 2003; Karantininis et al., 2010). A key development in this area is that of open innovation where firms can draw upon internal and external sources of knowledge to develop a wider organisational approach to innovation (Chesbrough, 2003; Enkel et al., 2009). Chesbrough (2003) suggests two forms of knowledge flow for open innovation. First ‘outside-in’ where external knowledge is accessed, evaluated and assimilated using environmental scanning. This external knowledge may be obtained through vertical and horizontal networks that may be used to overcome skills and knowledge deficiencies, and provide external knowledge that acts as a source of innovation. Second, ‘inside-out’ is where the firm uses its internal knowledge resources to commercialise innovation. Inside-out knowledge flows are more likely to be limited by smaller firms’ innate resource limitations (Kirkels and Duysters, 2010).

Vertical networks are linked to knowledge gained from collaborations with customers through user innovation (Von Hippel, 2005; Van de Vrande et al. 2009; Doran et al., 2012; Vega et al., 2012), and relationships with suppliers that create an environment for innovation (Henchion and McIntyre, 2005), particularly within the micro enterprise context (Tu et al., 2014). Horizontal network development relates to a strengthening of local productive capabilities through innovation networks involving joint working between the firm, other

producers and other network actors (Murdoch, 2000; McAdam et al., 2014). In the agri-food context McAdam et al. (2014) found that small firm open innovation networks are horizontal in nature, i.e. where knowledge exchange is based on trust and multiple social exchanges built over time rather than a dyadic hierarchy. McAdam et al. (2014, p. 845) show that trust acts as a cohesive force in horizontal networks, in which it ‘helps to build commitment and a feeling of integration between members, leading to increased innovation and improved economic output’. The approach to open innovation as an enabler for knowledge exchange in horizontal networks is consistent with knowledge based clusters (Bathelt et al., 2004; Rychen and Zimmermann, 2008), where knowledge exchange based on open innovation principles, as noted above, form the basis of such clusters (Craviotti, 2012; McAdam et al, 2014). Van de Vrande et al. (2009) suggest that smaller firms need to effectively draw on such networks as innovation sources and partners for particular projects (such partners may also be competitors in other projects in different knowledge networks) and that this approach can enable smaller firms to effectively jointly innovate at a network level with lower costs.

In a broader knowledge exchange context, the concepts of regional collective learning and of regional innovation systems have addressed the role of public, or non-firm institutions (governments, universities, development agencies and so on), in facilitating innovation capacity or the regional innovation system (Cooke et al., 1998; Landabaso et al., 1999). Similarly, the importance of regional ‘institutional thickness’, in the form of an interlocking and integrated network of supportive organisations at the firm and regional institutional levels, has been highlighted in helping to shape the development of a collective learning capacity (Amin and Thrift, 1995, Keeble et al., 1999). Within the rural context, studies have examined the relationships between public and private actors through the roles of governance (Brunori and Rossi, 2007; Taylor, 2010; Wellbrock et al., 2013), collective action (Brunori

and Rossi, 2000) and public actor initiatives (Martin and Marsden, 1999; Banks and Marsden, 2000; Clark et al., 2007). It is argued that institutional actors should play a supportive role by building up the networking capacities of rural economic actors and communities (Orozco-Quintero, 2010). In this regard, institutional actors should consider how relational assets such as social capital, trust relations, reciprocity, and learning capacities may be best leveraged to improve network outcomes (Landabaso et al., 1999) and, in turn, local economic development (Trigilia, 2001).

The importance of institutional support in the development and progression of small agri-food collaboration has been highlighted by several authors (O'Reilly and Haines, 2004; Bertolini and Giovannetti, 2006). However, it has been shown that institutions only partially recognise the diversity of needs and competencies of producer actors (Chiffolleau, 2009) and that collaborative progression can be hindered if the support measures are not tailored to suit the needs of the small firm (Lamprinopolou et al., 2006). This has also been identified as an issue more broadly for small firms, where the role of institutional organisations' involvement in small firm collaboration has been questioned due to problems of compatibility and cultural barriers between institutions and small firms, and institutional actor bias towards working with technology intensive SMEs (Todtling and Kaufmann, 2001).

## *2.2. Social networks in a rural context*

The importance of social networks to knowledge exchange within a broader rural context has been highlighted, in that social networks allow rural places to overcome disadvantages of location and size (Anderson and Jack, 2002; Ring et al., 2010; Moyes et al., 2015), and informal networks have been deemed to be of critical importance in rural areas

(Atterton, 2007). The social network dimension refers to the ways in which people are connected through various social familiarities, ranging from casual acquaintance to close familial bonds.

Social capital can be assessed through the wider networks or communities in which actors are embedded and is deemed to be extremely important to knowledge exchange in rural areas (Tregear and Cooper, 2016). This infers the importance of strong personal relations and networks of relations in generating trust (see for instance Burt, 1997; Granovetter, 1973; Nahapiet and Ghoshal, 1998; Alder and Kwon, 2002). Social capital facilitates the development of tacit knowledge, and where it is well developed, can facilitate collaboration between firms and institutional actors (Morgan, 1997). A distinction has been made between bonding and bridging social capital (Putnam, 2000; Woolcock, 2001). Bonding social capital exists within comparatively homogeneous, tight-knit groups, such as families, close friends, and neighbours (Ring et al., 2010). The concept refers to closed, dense networks and strong ties (Granovetter, 1973; Leonard and Onyx, 2003; Boutilier, 2007) or the 'glue' needed to link community members together (Anderson and Jack, 2002).

Bonding social capital has been shown to be essential for the development of trust within a network, however, excessively strong communal ties have been found to be problematic, leading to 'overly-embedded' contexts (Uzzi 1997), where actors may develop an insular reliance upon strong-tie partners, to the exclusion of outside actors. This insular pattern of behaviour can lead to inertia and loss of market focus due to institutionalisation of norms and over reliance on current network partners, at the expense of innovation (Hoang and Antonic, 2003). Alternatively, bridging social capital describes the bridging of one community to gain access to the valuable resources of more heterogenous groups in the

outside networks of the wider economy. Bridging capital is viewed as necessary for real economic development to take place (Leonard and Onyz, 2003).

One of the key components of social capital is trust. Trust is widely viewed as a fundamental characteristic of business networks, shaped by actors' performances and the power differentials between interacting agents, situated in relation to specific geographical contexts for exchange and interaction (Murphy, 2006). Trust acts as the governance mechanism of embedded relationships, facilitating the exchange of resources and information (Uzzi, 1996). It builds confidence and in turn increases the likelihood that the information provided will be turned into useable knowledge (Fisher, 2013). The nature of trust is viewed to be different in bridging and bonding relationships where trust is deemed to be thicker in bonding social capital, based on commonly shared norms, values, professional standards, and codes of behaviour (Fukuyama, 1995).

Social networks and the social capital concept have value here in identifying the nature of network ties, how and why the networks form and how they may be managed over time. They enable understanding around various themes such as the potential for innovation or the identification of power bases for information control and brokerage (Slotte Kock and Coviello, 2010). However, there have been calls for further theoretical refinement, for a better understanding of the concepts and the relationship between the key components. There have been calls to move away from the dichotomy of strong versus weak ties towards a more nuanced perspective where ties are differentiated not only by intensity, but also the content of the relationship (Jack et al., 2004). Furthermore, there have been conflicting views on the direction of the relationship between trust and social capital. Putnam (2000) contends that social capital works to generate trust while others such as Adler and Kwon (2002) and

Fukuyama (1995) view trust as necessary for the development of social capital. The social capital concept more broadly has been criticised for its ‘intangibility’ and measurability (Fisher, 2013), its ‘exclusivity effects’ (Nardone et al., 2010) and its association with unproductive use of resources (Putnam, 2000).

### **3. Research methods**

The research adopted a qualitative approach involving semi-structured interviews and group discussions with producers and institutional actors, and participant observation. Qualitative research has been deemed appropriate to study networks (Hoang and Antonic, 2003; Jack, 2010), given the dynamic nature of network development, where a longitudinal approach would be appropriate. Purposive and snowball sampling were used to select artisan food producer interviewees. There are no official datasets on artisan food producers in Northern Ireland, but various sources, including local council listings and food associations, indicate that there is in the range of 180-200 micro size artisan food producers currently operating within the sub sectors of dairy, baked goods, preserves, poultry, soft drinks, oils, meat, confectionary, seafood and alcohol.<sup>4</sup>

Semi-structured interviews were held with 19 owner-managers drawn from this population. Eight small group discussions were also held at food producer events. These events included local authority business support programmes for artisan food producers and action learning workshops that were run by the researchers. The action learning workshops were organised as part of the researchers’ involvement in a European Union funded research project on innovation in local food production, over a three year period. The researchers led

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<sup>4</sup> By micro we mean less than 10 employees.

the small group discussions and recorded the discussions for transcribing. The groups included a mixture of participants across sub sectors, including nine of the owner-manager interviewees and a further 16 producers. Thus, in total data were collected from 35 artisan food producers. This sample represented a range of food sub sectors, reflecting the sectoral compositions of these producers in Northern Ireland. The majority have had some degree of involvement in knowledge exchange through institutional support programmes and networks.

Key institutional actors were selected due to their experience with network support for the food sector. A total of 11 semi-structured interviews were conducted and further qualitative data were collected in eight small group discussions at business support events and action learning workshops. This led to data collected from 25 institutional actors. These actors were representative of the range of agencies in Northern Ireland with responsibility for providing network support programmes, or influencing policy for the food sector.

In addition to the interviews, participant observation longitudinal data were collected from the business support events and action learning workshops over a three year period. This consisted of informal discussions between the researchers, producers and institutional actors, and observation of interactions between producers and institutional actors. The interaction between producers and institutional actors was particularly beneficial in providing insights into actor roles, motivations and prior experiences. The researchers compared observations to ensure that a reliable account of the interactions was formed. Emerging themes were then used to inform further rounds of interviews. This allowed for data triangulation, thus ensuring a greater degree of validity, information richness, coherence and insight (Perry and Coote, 1994). The data analysis followed a thematic approach based on

repeated reading of transcripts and fieldnotes, in order to formulate relationships in the data under themes corresponding to the research questions.

## **4. Results**

### *4.1 Case context*

Northern Ireland has the highest concentration of small businesses in the UK, with 99% of businesses classified as small, employing less than 50 people (Northern Ireland Chamber of Commerce, 2014). The region has a rapidly growing base of entrepreneurial, micro size artisan enterprises (Mintel, 2012), many of which have already won international awards for products combining outstanding taste, quality and innovation (Agri-Food Strategy Board, 2013). There has seen an increasing demand in recent times for authentic fresh produce and local food (Mintel, 2012) driven by food scares and concerns around food security. In recent years the quality of its regional produce has been recognised in Protected Geographical Indication (PGI) status being awarded for three food products (Armagh Bramley Apples, Comber Potatoes and Lough Neagh Eels). Government regional policies consistently identify growth ambitions for the agri-food sector.

There are a broad range of institutional network actors that provide programmes and network support for artisan food producers in Northern Ireland. Table 1 highlights the key institutional actors and provides a summary of their role. Institutional actors with a clear supporting role for the business development needs of small rural food enterprises are particularly the Department of Agriculture, Environment & Rural Affairs (DAERA), local authorities, and trade body associations. DAERA assists with the competitive development

of the agri-food subsectors and has a leading role in the development of policy and programmes for the overall sector. DAERA has responsibility for funded programmes such as the Rural Development Programme and the Agri-Food Research Challenge Fund, and the provision of innovation and skills development services at the College of Agriculture, Food and Rural Enterprise (CAFRE). At local authority level, programmes typically are supported by European Union funding and other regional funding and tend to engage clusters of council areas. One such example is the South Eastern Economic Development (SEED) Consortium, led by Down District Council who have managed food programmes designed specifically for the needs of local food producers and food service operators. Industry bodies such as FoodNI also have a sector specific focus and provide marketing and promotional support for local produce. The Northern Ireland Food & Drink Association, the leading food industry association in the region, has provided tailored support for food and drink SMEs in conjunction with their counterparts in Ireland and Scotland.

The Northern Ireland Government economic development agency, InvestNI, has a dedicated Food Division which encompasses all food industry development activity, including food start-up activity. This team supports market development and sector engagement with other InvestNI programmes. The division is mainly focused on supporting export focused food businesses, and engagement with artisan food producers that are focused on local markets is limited. Broader non sector specific support is also available at various levels depending on the innovation capabilities of the business including support focused on business collaboration (Collaborative Network Programme) and business to academia collaborations (Innovation Vouchers, Competency Centres). Of these interventions, the Innovation Vouchers programme has been most successful in engaging small food businesses in innovation support.

Despite the numerous business development programmes in the area of food, at regional and local levels, there has not been an integrated approach taken to their delivery (Agri-Food Strategy Board, 2013). Under the leadership of the Northern Ireland Executive, the Agri-Food Strategy Board has been set up to present a strategic action plan for the agri-food sector in the region. The major focus of the plan is on development of the food supply chain regionally to enable greater efficiency and greater focus on export markets. While the need to grow the artisan sector is articulated within the plan, the recommendations are generally more broadly based, with little specific reference made to artisan rural food enterprises. This would suggest that the plan will only have a limited impact on the development of the artisan food sector within Northern Ireland.

**Table 1**  
Institutional actor roles for agri-food in Northern Ireland

<b>Institutional Actor</b>	<b>Activity</b>	<b>Policy Role</b>	<b>Network Development</b>	<b>Network Implementation</b>	<b>Reach</b>
Agri-Food Biosciences Institute	High technology research and development, statutory, analytical, and diagnostic testing functions in agriculture and food.	X	✓	✓	Regional
Agri-Food Strategy Board	Strategic advice to Government on agri-food sector challenges and priorities.	X	✓	X	Regional/ International
Department of Agriculture, Environment & Rural Affairs (DAERA)	Policy and programmes for the agri-food sector.	✓	✓	✓	Regional
Department for the Economy (DfE), incorporating InvestNI	Formulates and delivers economic development policy for Northern Ireland. Support for employment, recruitment and skills development.	✓	✓	✓	Regional/ International
FoodNI	Promotes small/artisan food producers in Northern Ireland through the coordination of agricultural shows and food events.	X	✓	✓	Regional
Food Standards Agency, Northern Ireland	Food safety, standards, nutrition and dietary health in Northern Ireland.	✓	X	X	Regional
Further Education Colleges	Support for small business training and development needs, innovation, management and leadership requirements.	X	✓	✓	Regional/ International
InterTrade Ireland	Cross-border business funding, business intelligence and contacts for SMEs across the island of Ireland.	X	✓	✓	Regional/ International
Local Authorities	Small business support.	X	✓	✓	Local
The Northern Ireland Chamber of Commerce	Support for businesses to grow locally and internationally through an extensive network, policy and growth hub.	X	✓	✓	Regional/ International
The Northern Ireland Food & Drink Association	Lobbying role and support for members' business network development.	X	✓	✓	Regional
Queen's University Belfast	Consultancy services for small food producers.	X	✓	✓	Regional/ International
Rural Development Council	A range of development, support, training and delivery services.	X	X	✓	Regional
Ulster University	Consultancy services for small food producers.	X	✓	✓	Regional/ International

#### *4.2. Network involvement*

There was evidence of extensive use of a broad range of knowledge sources and networks for innovation outside interaction with institutional actors. The network ties were mostly strong, local and vertical in nature, where a high degree of social capital is evident, from family and business networks. Family members have been instrumental in supporting the development of these businesses, including siblings working together, wider family members, and husband and wife teams. In fact the cases demonstrated several examples of radical innovation<sup>5</sup>, from family and friends networks. For instance, an innovative craft strawberry cider had its origins 35 years previously in strawberry flavoured juices that the owner had developed with his father from a pastime of home brewing of fruit wine and beer (P12, Cider). The idea had stayed with him and many years later he resurrected it but with cider.

A highly important external source of knowledge was the learning and know-how obtained from international travel that has been a factor behind the process of developing new products and ways of doing things and indeed the formation of the business itself. There were examples of radical innovation that arose from travel whereby the travel had allowed for the identification of something that was ‘different’, or new to the Northern Ireland market. For instance, a recently established bakery utilised ideas from a trip to Paris (P27, Baked Goods). A cheese producer (P15) illustrated how he started his business following a holiday in France and was inspired by the quality of cheese that was being produced there in comparison to the typical imported cheese: “that was my inspiration to try and make something that fresher and different”.

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<sup>5</sup> Radical innovation is defined here as the introduction of new products to the business, and to the Northern Ireland market, which includes new ingredients used to modify existing product lines.

Respondents cited involvement with a range of business network actors, leading to product innovation. As with social and family networks, these business networks represent locally embedded network ties. The interviews highlighted the role of vertical networks for innovation. Of these networks, information from customers was cited as an important source of knowledge for product innovation. To a lesser degree other supply chain actors have been influential. Other vertical networks were cited including the role of local chefs and retailers and butchers. Several of the respondents looked to other food producers for inspiration, outside the local area, demonstrating the use of weak ties for innovation. This involved the use of the Internet and researching into company activities online.

The use of networks for collaboration between producers was largely horizontal in type (within-sector). For instance, an informal, horizontal network of sauce producers had come together to share ideas on a range of issues from recipes through to production of the product to the packaging and labelling: “we all share back and forth...it’s a constant back and forth” (P5, Preserves). In this case, the informal network was used to address any practical day to day problems the participants were having. In other sub-sectors, such as cider, there were examples of reciprocity and the sharing of resources: “we have become quite good close mates...his mill broke down and he borrowed my mill.” (P19). While the notion of exchanging knowledge, learning, experiences, and indeed just providing help, is clearly not exclusive to the AFN and artisan contexts, these examples highlight collaboration and trust developed from underlying shared values around product authenticity (see also section 4.3.2 on trust) which shapes the individuals’ priorities and perceptions of their own contribution to collaboration (Tregear and Cooper, 2016).

There were examples of involvement in lateral networks across food sectors leading to radical innovation from the local market strong ties. For example, an ice cream producer (P6) introduced a new product range of alcohol ice creams, and a yoghurt dessert ice cream ('the first one on the market in Ireland'), as a result of a collaboration with members of the fast growing craft brewing market and a yoghurt company. However, both lateral and horizontal networks were largely characterised by a focus on the exchange of information and knowledge, which did not necessarily lead to innovation outcomes. Here, a high degree of socialisation takes place. Friendships and a sense of togetherness characterised bonded social capital.

The majority of the producers had utilised knowledge at some point from institutional network support, which included providers such as regional government, universities/colleges, local councils and trade associations. Involvement in institutional networks for these producers was evident mainly through funded business development projects, supported by European and regional Government funding, and delivered by local councils. These programmes provided more specialised and practical support, focused on the food sector, and more tailored to company needs, than would have been available from regional government departments as illustrated by this producer: "One of the bigger pluses for me was having that flexibility. I was not signing up to a programme that was set in stone" (P15, Preserves).

The reasons cited by respondents for joining an institutional support network were, for the most part, related to knowledge exchange, including learning from other food producers, and general business development, rather than for innovation purposes. A baked goods producer, who had quite recently started the business, explained:

*“Because I am new to all of this I was just trying to gain as much knowledge as possible. There are a lot of people on it who have been foodies in business and different things for years. A lot of very clever, knowledgeable people. If you can get one bit of knowledge and they can point you in one direction, it is brilliant.”* (P24, Baked Goods).

A further reason cited by respondents was access to food events to help promote and develop the business. These events were often scheduled within a programme at a reduced entrance rate: “...without that £750 I probably could not have went to Balmoral Show or I would have had to sacrifice other shows for that one” (P2, Baked Goods). Respondents also referred to the importance of availing of tailored support from local authority programmes, receiving mentoring from expert business consultants.

Whilst innovation was a core objective of institutional programmes, and involvement in institutional networks led to some product innovation, the knowledge transfer and learning from fellow programme participants was felt to be a key output from the involvement in institutional networks: “You learn so much from others...other people that have been successful...and you can tweak what they do to suit you and I think that’s important” (P13, Cider). However, a particularly noteworthy feature of the involvement in institutional networks, which was not as strongly observed from the informal networks, was the transformational impact that institutional networks had on the participants’ confidence levels. While the respondents exhibited extreme levels of confidence in their products and their quality, they were much less confident in their abilities as entrepreneurs and marketeers. Respondents spoke about the reassurance that involvement in food development programmes gave: “reassured us that what we are doing is good...it has given us that confidence...we

didn't necessarily learn a huge amount (from elements of the programme) but it reassured us that we were on the right track" (P23, Baked Goods) and that the programme has given "more confidence that my products will sell" (P26, Preserves). The structure of involvement in these programmes allowed for interaction with buyers from major retailers which provided the participants with valuable experience in business development and marketing.

### *4.3. Institutional network development*

#### *4.3.1. Perceptions of network value*

For the majority of the producers in this study there was generally some confusion around institutional actor programmes. The sheer range of information, offerings and sources of knowledge, was, as suggested in the open innovation literature (Lee et al., 2010; Vahter et al., 2014), stretching the enterprise's ability to absorb such knowledge. The respondents highlighted a lack of understanding of how to access support networks and which agencies to approach. For instance: "I find it confusing because I don't think anyone knows where to go" (P21, Preserves), and "I find that unless it's...an email that comes through about something I have signed up to, it is hard to find out" (P23, Baked Goods). An institutional actor representative from a local council, with an economic development role (IA4), noted that in a very small company "...you don't have any formal way really of actually getting that information". A lack of cohesion or 'joined up' approach between institutional actors was cited as a factor contributing to confusion, and in turn restricting involvement in institutional support networks. For instance, while there was some engagement in introductory innovation programmes (the Innovation Vouchers programme), none of the respondents had made applications to the collaborative network programme administered through InvestNI. Such

advanced forms of innovation support may be less relevant to resource constricted artisan businesses, however, interviews revealed how the producers' interpretation and understanding of an innovation-labelled programme played a significant part. They seemed to engage in innovation implicitly and instinctively without thinking of themselves as being typically innovative:

*“To be honest I don't apply for any funding or help regarding innovation because I always think that is something that goes towards technology or engineering or I don't see that, and very often when I look into the criteria it is not about my product. I just think I do not fit into that.”* (P3, Desserts)

There were contrasting views between the producers and the institutional respondents with the latter defending the type of network supports available. There was a recognition though that these needed to be communicated more strongly. Institutional actors referred to a 'silo' mentality with too many organisations with interests in food, with a proliferation of staff contact points in each of the agencies. One respondent highlighted the duplication in offerings within Government but cautioned against the 'huge undertaking' in eradicating this duplication, inferring a level of protectionism on the part of the support providers (IA2, Government Department).

The findings illustrated a conflicting set of goals and a disconnection between some of the main institutional actors (government and trade bodies) and these artisan producers. Whilst the producers espoused embeddedness within the local market, they perceived Northern Ireland's regional Government bodies to be focused primarily on export to the detriment of expanding the food market in Northern Ireland:

*“...with Invest NI ... or the bodies that are supposed to help you, they only focus on export. You get absolutely no help to grow your business locally which is, if you don't have a base market to fall back on, what do you do?” (P13, Cider)*

The lack of understanding of the institutional network programmes, and the sense of disconnection from the services of the institutional actors, suggests a degree of rural isolation from the regional Government actors. The feeling of disconnection and isolation largely was related to the type of support provided, rather than any geographical distance. The theme of disconnection and isolation from institutional actors was also reflected in respondents' attitudes towards food trade bodies. Here, respondents cited the need for a 'voice' or collective body, which would provide scope for knowledge exchange, and which would also represent their views as a lobbying group for further support from government. There was a feeling that trade bodies increasingly tended to represent and reflect the interests of larger food businesses, who were not artisanal or specialist in nature. Interestingly though, some producers took a more reflective approach towards their own role and acceded that they could have taken more responsibility and actively developed their networks and interaction with institutional actors, for instance: “Maybe I am not proactive but I just wait to hear from them and react accordingly” (P3, Desserts).

#### *4.3.2. Trust*

The interaction with institutional networks was largely influenced by the value placed on trust by the producers; trust in relation to the institutional actor/network broker: “You have got to trust the people who are supposedly supporting you” (P19, Cider) and trust in relation to other producers: “I think there has got to be trust...there has to be sharing. You can't go

and take everything, there has to be sharing. You have got to be willing to help.” (P8, Desserts)

The value placed on peer sharing during participation in network programmes was evident (‘people with hands on knowledge’, P3, Desserts). The value of peer support was highlighted by this producer who enjoyed meeting up with another producer at network events:

*“...a very clever chap, he was friendly with my father....I like to hear his take on things. I would see the likes of him being very steady and not in it just for himself.”*  
(P25).

A strong degree of empathy and trust was demonstrated here as both producers were from the same rural area originally, from a similar farming background (dairy farming), and had a connection through family members. Another respondent provided an example of how trust was formulated between members of an institutional programme during a trip to the Republic of Ireland, where members provided advice to another member on a particular business problem.

The factors that led to trust formation between producers and institutional actors, or to a breakdown in trust, were explored with respondents and were found to be multi-layered. Trust was built between the institutional actor and the producer where there was a degree of empathy. For instance, more trust was placed in the institutional actor if the actor was based locally and thus deemed to be knowledgeable about the business:

*“I think there has been more trust (in the local programme) because there are more local people and because they know the local area – all of the meetings with (the export programme) have been in London. Everyone is on edge.”* (P8, Desserts)

Another instance of lack of empathy was highlighted in the case of a cider producer who recounted a story about the delivery agent for an institutional programme visiting him at home:

*“I asked him if he wanted tea or coffee and the first thing he said was, have you any green tea? And I thought to myself, not every house will have green tea!”* (P19, Cider)

The perceived capabilities of the institutional actors was a significant factor in the development of trust in institutional programmes and impacted on producers’ involvement in networks, and in turn restricted or facilitated knowledge exchange (Fisher, 2013). Respondents formed negative perceptions of institutional actor knowledge from prior network involvement and this in turn shaped attitudes towards subsequent involvement (or lack of) in institutional networks. In some cases, and particularly among those producers in emerging areas of artisan production, such as cheese and cider production, there was a clear disdain shown for institutional actor knowledge.

*“There is nobody there really with the right relevant expertise, maybe on the brewing side, yes, not on the cider.”* (P12, Cider).

Producers sought to compensate for this knowledge deficit through learning accrued from exchanges between producers on network programmes, where practical knowledge and experiences were exchanged to solve problems and where assistance was gleaned for addressing day-to-day problems that were very much industry specific.

There were examples cited of positive experiences of institutional support that garnered respect from the producers and fostered trust and a resulting engagement in networks. Respondents spoke of the networking capabilities of individuals in various organisations: “from what I know of his background he certainly presses a lot of buttons in a lot of places that matter” (P6, Desserts). The empathy demonstrated by a network broker was noted: “She genuinely cares about your views as a participant. It is not just about her business and so forth” (P26, Preserves). Moreover, the passion and drive of the network broker was highlighted and this drive was seen to act as a source of motivation: “I think you need someone really good as the driving force...a good motivator will motivate people to go out to events” (P10, Free Range Meats). Respondents spoke of the proactive and enthusiastic nature of institutional actors that allowed access to networks which were either perceived to be not available to the respondents, because of eligibility issues, or where there was a lack of awareness of the support:

*“She was brilliant. She would ring me and say funding is opening, is there anything you need funding for, do you need any help? Is there something you would like to do? A very clever lady, really supportive...very enthusiastic.”* (P25, Preserves)

Producers’ trust in actors was related to the value they placed on the institutional actor’s ability to make things happen, rather than purely acting as a signposting service to

other sources. In this, a degree of 'handholding' is key (P3, Desserts), where a relationship is formed with the actor who has an understanding of the business.

There were numerous examples of how institutional actors sought to build trust. Actors reflected on a change in stance that had seen them take a more inclusive approach towards building relations with producers: "I would say there has been a shift...it is done much more on an inclusive basis" (IA11, Government Department). Likewise, IA2 reflected on the development of his role as a business advisor, moving away from a reactive to a proactive stance, through visiting the businesses more on a one to one basis.

Perceived conflicts of interests affected trust and restricted engagement with institutional actors. For instance, one producer (P13, Cider) took a cautious approach in their dealings with a government body business development agency, who was in contact with other cider producers ('you have to be careful what you say'). A particularly strong example of how trust and conflict of interest impacted on the effectiveness of an institutional network was a food development programme. Several respondents who had taken part in the programme highlighted the issue of self-interest and opportunistic behaviour on the part of the network broker. This breakdown in trust impacted on their decision not to take part in further events as part of the programme. This was particularly an issue for the enterprises at an earlier stage of development: "when you are starting out you rely heavily on your consultants..." (P21, Preserves). Linked to the breakdown in trust, was a belief that the original goals of the network were not met. Therefore, resistance or support for the programmes is a function of the degree to which the institutional actor creates a sentiment of trustworthiness in the mind of others (Murphy, 2006).

Trust was found to be heavily related to sectoral cultural issues. The ‘sceptical’ nature of many food producers (IA1, Consultant) and a lack of recognition of the value of collaboration, were deemed to be part of ‘the psyche’ (IA7, Education) and characteristic of the food sector and farming more generally in Northern Ireland. Institutional actors spoke of a ‘cultural’ issue in the Northern Ireland market around a fear of competition which obstructed institutional actors’ efforts to foster networks:

*“It was very difficult to get them to open up and actually talk through, because they are competing with each other.”* (IA2, Government Department)

This actor referred to the nature of family businesses in Northern Ireland that have been established over several generations and have an ingrained aversion to working with businesses that they have traditionally been in competition with. Respondents’ views illustrated the role of sectoral cultural tendencies, or the macro, structural context referred to by Murphy (2006), in restricting collaboration. For instance, a baked goods artisan recounted how ‘the home bakeries are very parochial and local for themselves’ (P9, Baked Goods) and a prevailing attitude among cider producers of a lack of appreciation of the benefits of working together was noted (P13, Cider). The sectoral cultural context was again manifest in the actors’ shared values around product authenticity, which represented a tacit values-based approach, and shaped the individuals’ priorities and perceptions of their own contribution to collaboration (Tregear and Cooper, 2016). For instance, this cider producer expressed a strong belief in only collaborating with other producers who shared his values on the authenticity and quality of the product:

*“...some people care more about produce than others...I would share with people that I would perceive to have the same values that I have. And I tend to find that you tend to gravitate towards people that are of a like mind to you.” (P12, Cider)*

This producer’s values were reflective of strong associations between the quality of the product and authenticity (Ilbery and Kneafsey, 2000). In this case, the producer espoused a strong belief in the quality and taste of the product and also its provenance. For instance, he questioned other producers’ activities in labelling their products as Irish cider, having sourced the fruit from England:

*“I could probably get English cider apples that are geographically closer to me, but I buy Irish because that way you can say it’s an Irish product.”*

The shared values around product authenticity served to generate bonding social capital and trust, which is typically embedded in strong-tie networks (Ring et al., 2010).

#### *4.4. Actor roles for network development*

##### *4.4.1. Institutional actor network bridging role*

Institutional actors played an important network bridging role for these enterprises. For instance, several respondents availed themselves of contacts from the regional Government economic development agency for product testing support through Government subsidised consultancy from a food science college. The college (‘CAFRE’) helped to develop recipes and secure intellectual property rights and acted as a platform for producers

moving onto the next phase of network support development (“if it wasn’t for CAFRE I wouldn’t have a product and I wouldn’t have went to DARD which got me my business plan”, P21, Preserves). Institutional actors also provided access to informal producer networks. For instance, a loose, informal network of producers emerged from a local council event for artisan food, for the purpose of exchange of experiences, and facilitated by a consultant with extensive experience in food programmes. The network building role of institutional actors was also evident in how business networks for innovation grew from events that were communicated by the actor: “fairly regularly we would put out ideas like the innovation grants” (IA1, Consultant). Furthermore, local council networking programmes have facilitated access to events and informal networks that have allowed for relationships to be developed. Indeed such access to events was a clear factor in producers’ decisions to join local council programmes:

*“Building up those relationships has been a big part of being involved in the food programme, without that we would not have got to meet any of those folk.”* (P23, Baked Goods)

Institutional actors’ constructions of their roles in network development was very much dependent on the nature of the actor’s role in food sector network development. Actors with a broader economic development role took a more ‘hands off’ approach, and viewed their role as supporting the development of networks but believed that the networks should become self-sustaining. The network support from these institutional actors was not unconditional, nor provided for over an indefinite period, as expressed by this actor:

*“We should not be working with the same businesses for years and years. We should be working with them for a set period of time...It is not about sitting holding hands the whole time because I think that does them damage.”* (IA15, Government Department)

This viewpoint was shared by other economic development actors who viewed their role as one of facilitating network development and collaboration, and were firm in their belief that responsibility for developing long term sustainable networks would lie with the producers themselves: ‘we will encourage it but they will have to come together..’ (IA2, Government Department). In contrast, actors that were more food industry focused took a more supportive approach:

*“With smaller businesses it is much more of a relationship, you really become like part of a family, so that support is a lot more personal. We are there to support the businesses .....some businesses need a lot of handholding and just even to be on the end of the phone.”* (IA6, Education)

This actor continued by giving an example of her role in facilitating network building among producers by providing a physical space for interaction:

*“In our distribution centre there is a canteen area and that is where that happens (network development). They will chat over a cup of coffee. It is collectively that people know of the facility. They know of the clients that are in the facility, and it is really spin offs...”*

The value of the institutional actor bridging role to the producers was clearly demonstrated in one case where an institutional actor with a food industry focus (IA11, Government Department) played a highly important role in bringing previously disconnected producers together to form a cooperative network with common goals around food quality and origin, leading to strong, locally embedded ties. The actor recounted how he had developed a food quality (PGI status) application and set about to bring producers together. The application was subsequently successful and led to the formation of a food producers' group.

#### *4.4.2. Network participant (producer) reciprocity*

The involvement in institutional networks provided benefits to the producers derived from trust and reciprocity. The role of networking 'events', both specifically organised as part of the formal network or in other cases 'signposted', in providing a space for forging relationships was noted by both institutional actors and producers. A number of respondents used the phrase 'camaraderie' to explain the nature of interactions from meeting other producers at supplier meetings, presentations, food markets, festivals and agricultural shows: 'there is a real camaraderie between them all when they are at those events and that works' (IA9, Local Council) and 'there is definitely camaraderie there' (P3, Desserts). The networking from attending food events and the friendships that were developed, and the opportunity to share frustrations with the other members, were clearly evident.

The socialisation arising from the networking and the formation of friendships facilitated the exchange of knowledge between the producers. Friendships and relationships were forged over time and were developed from pre-existing embedded ties and relationships

of trust from involvement in earlier network programmes. Moreover, social capital was built outside the more formal aspects of network programmes (“the residential was when people really let their hair down, had a bit of craic and it was much more laid back after that”, P8, Desserts). Therefore, in these institutional networks trust and reciprocity are inextricably linked. The value placed on reciprocity between producers was evident: “any help I get, I am straight on to someone else to say, do this or don’t do that” (P3, Desserts). The experiences and knowledge of other producers were highly valued (‘people with hands on knowledge’, P3), relative to the formal knowledge imparted by the institutional actor in the form of consultants or presenters at workshops or conferences.

Informal networks grew organically out of institutional forms with the producers displaying strong reciprocity, either during the network programme or after the formal programme ended, for the purpose of knowledge exchange. This applied to business development networks and trade body networks. Again, the networks demonstrated strong elements of trust and reciprocity based on the development of friendships and a strong degree of socialisation over time. The value of this form of on-going contact after the programme finished, and the continuation of contact between the participants, was noted: “If I have a problem I can phone them up and say, what about this?” (P21, Preserves). This demonstrates the embeddedness of ties (Uzzi, 1996) in that members continued to exchange after the completion of the formal programme and its associated benefits of financially subsidised events. In one case, the informal group emerged from the perceived shortcomings of an institutional network programme. The programme had been a follow-up to an earlier successful programme and built on pre-existing social cohesiveness:

*“Those of us who were involved in the first programme we are still connected, maybe more so because of the second one not working. We were working together, they (institutional actor) knew nothing about it.” (P13, Cider)*

Thus, social cohesiveness of the group helped to overcome the perceived negative consequences around the lack of institutional support, as suggested by Lamprinopoulou and Tregear (2011). This example illustrates that there may be unintended outcomes from institutional programmes, including the formation of informal groupings as a reaction to a breakdown in the formal support network. This further emphasizes an issue of the producers’ perceptions of institutional actor knowledge and capability and indicates how bonding social capital is used to compensate for programme shortcomings.

## **5. Discussion**

This paper began by identifying a gap in knowledge on network development in the context of rural, artisan food production, and specifically the role of institutional network actors in facilitating knowledge generation, network development and innovation within this context. In addressing this gap, the paper sought to explore how locally embedded artisan food enterprises engage in institutional support networks for innovation. We argued that by focusing on the content of the institutional actor-producer relationship, and the social attributes of trust and reciprocity that influence the formation and development of institutional and linked networks, as well as the opportunities for innovation, the paper would contribute to knowledge on agri-food networks and the rural studies literature more generally. Subsequently, the paper utilised concepts from knowledge exchange and social networks to interpret the nature of network development and the institutional actor-producer relationship.

The value of these concepts in explaining network development within this context will be given further consideration in this section.

What do the findings tell us about artisan producer networking activity in broader terms and the outputs (innovation or otherwise) from those networks? Well clearly these enterprises are extensively involved in a range of networks, both informal and more formal, institutional network types. As may be expected for enterprises that are small, rural and locally embedded, the ties were mostly strong, local and vertical in nature, where a high degree of bonding social capital is evident (Granovetter, 1973; Burt, 1997; Alder and Kwon, 2002). It is the relationships with informal network actors (strong ties) rather than with formal or institutional actors (weak ties) that primarily lead to knowledge exchange and innovation within this context. The findings on the forms of innovation are somewhat counterintuitive in that radical forms were developed from the strong local ties, rather than the weak ties of institutional sources. Within this context, we identified weak ties leading to some radical innovation activities but this was evident through learning from international sources, through travel and research, rather than through institutional sources (Von Hippel, 2005; Van de Vrande et al., 2009; Doran et al., 2012; Vega et al., 2012). This finding raises questions about the effectiveness of the institutional actor role for regional innovation and rural development, and the value placed on institutional sources in the open innovation literature. There is a combination of factors at play here that restricts engagement with institutional actors and the potential for greater market reach, including the artisan producers' understanding of how to access institutional networks, the perceived value of those networks, and their own limited ambitions for growth. The strong focus of regional Government institutional actors on export market development and on innovation programmes deterred engagement and thus reduced the capacity of artisans to expand their reach across the region.

Our findings revealed that trust issues constrained the development of institutional and other network forms. This lack of trust may be attributed to several factors, including issues concerning the institutional actor and perceived conflict of interest, but perhaps most significantly trust was strongly defined by the sectoral context or ‘sectoral culture’ (Tregear and Cooper, 2016), and specifically shared values on product authenticity and fear of competition. While lack of trust can act as a barrier to producer engagement with institutional networks, nonetheless participation in such networks can foster the development of trust through the social ties between actors that have built upon pre-existing ties and social cohesiveness from earlier network programmes.

The findings would suggest that there is a need to consider carefully the distinctions that exist between particular institutional sources of knowledge. The institutional sources take varying forms, consisting of public or private providers, or a combination of both, and not least individual actors with varying priorities and capabilities. The institutional actors themselves view their contribution to network development in different ways, which is largely shaped by the nature of the actor’s role in food sector network development and the actor’s constructions of institutional interaction with producers. As Table 1 illustrates, there is a wide range of institutions with roles to play in artisan food network development. While it is beyond the scope of the discussion here to analyse each of the actor roles in depth, it is possible to make some observations on the types of actors and their impact. Our analysis suggests that Government department actors with a broader, regional, economic development role take a more removed view of their involvement, and view their role as supporting the development of networks rather than actively engaging in the networks. This philosophy was in many ways reflected in the type of knowledge imparted to the producers, which tended to be generic in type and thus not highly valued by the producers, with a subsequent lack of

engagement. As previous studies have shown (Lamprinopolou et al., 2006; Chiffolleau, 2009), this form of institutional support can hinder collaboration in that the support measures do not give sufficient recognition to the diversity of needs and competences. In contrast, there was more engagement with local authority network programmes which led to knowledge exchange and network development outcomes that were not planned for, nor envisaged.

While programme objectives for both regional Government and local authority networks did include targets for innovation, the majority of the producers did not value the networks in terms of innovation, nor seek innovation opportunities. Our findings indicate that institutional networks were used mainly to exchange information and tacit knowledge. For our respondents there was sufficient value to be gleaned from the social capital or ‘info-social’ benefits that do not lead directly to commercial outcomes (Newbery et al., 2015). Involvement in institutional networks allowed access not only to actor resources, but also to emotional and business support from fellow participants, which in turn helped to reduce feelings of rural isolation, and gave otherwise disconnected producers a collective voice, which they valued. The findings also indicated how bonding social capital, emerging from producer interactions, in effect compensated for a perceived lack of institutional actor knowledge and capability. Value was obtained from the bridging role played by institutional networks towards more informal networks that fostered embeddedness and the development of strong ties. This would lend support for Bowen’s (2011) assertion that formal institutions can reinforce social embeddedness and social ties between actors. This also provides additional insight into how and why ties shift from weak to strong (Jack et al., 2004).

## **6. Conclusions**

This study responds to calls in the rural sociology literature for a greater examination of the context and environment within which AFNs operate. Little is known about how locally embedded artisan food enterprises actually engage in networks for innovation and, specifically, how they engage with institutional support networks for innovation. So what does the study reveal about rural small firm networks? First, at a general level we believe that the sectoral cultural context is critical to an understanding of how rural firms use networks and the benefits that can accrue from their engagement with institutional networks. Second, our examination of network development in the context of artisan food raises questions about the nature of innovation within this particular sectoral context and challenges assumptions around the incremental nature of innovation in agri-food more widely, based on its low-tech characteristics. We do not wish to overstate the extent of radical innovation outputs from artisan food producers, but radical innovation is displayed and arguably to a greater degree than previously envisaged. Third, we suggest the need for a broader conceptualisation of social ties and embeddedness within this context to include knowledge derived from non-local territories and non-institutional sources. Fourth, the exploration of the sectoral context in relation to the nature of trust, and how this shaped network development, revealed the importance of themes such as shared values on product authenticity and provenance, and fear of competition. Fifth, the producer and institutional actors' notions of the value of knowledge from institutional sources revealed network building and reciprocal producer relations, which compensated for perceived knowledge gaps from institutional sources, and in some cases were instigated by the producers and in other cases were facilitated by institutional actors through a network bridging role. Finally, this network bridging role fostered embeddedness and the development of strong ties.

Future research may examine some of the themes addressed here in other food and rural settings and in other regions. The findings from this study provide further support for the need to consider context and how contextual factors and sectoral norms and behaviours shape interactions between actors, and in turn the formation (and nature) of networks for knowledge exchange and innovation. We found trust relations to be a strong feature of this artisan food sectoral context. Further exploration of the nature of trust in both food and non-food contexts and its interplay with institutional network development is needed. More research is needed to explore producers' construction of the value of the institutional actor role in relation to levels of engagement (how do those who are heavily engaged in institutional networks compare with those who have not engaged?). The network bridging and embedding role of institutional actors, and its impact for micro size enterprises more broadly in a rural setting, is worthy of consideration. Furthermore, there is a need to reflect on how social ties for innovation and embeddedness in this context, and indeed others, should be conceptualised. A conceptualisation of weak ties as constructing mainly institutional networks within the local territory would perhaps be too narrow in scope to convey the full extent of interactions, social relations and learning processes leading to knowledge exchange and innovation. In support of Tregear and Cooper (2016), this suggests the need to interpret embeddedness more widely and to consider forms of embeddedness in other non-local territories.

Finally, these findings have implications for the construction of institutional support structures in order to promote agri-food development, as part of wider rural development. There is a need for more effective design and management of institutional networks to foster engagement, particularly at regional Government level. There is also a need to strongly communicate the objectives of the network programme and manage artisans' expectations, in

that knowledge networks are not a panacea, as some may expect. Institutional actors have an important role to play in the development of informal networks for innovation through their network bridging activities. Thus, consideration should be given to how best institutional actors can leverage relational assets such as social capital, trust relations, and reciprocity to improve network outcomes.

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