Innovation and Development Support – Experiences from Food Networks in Canada and New Zealand

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Abstract

A common feature among networks is the focus on innovation but, the approach to driving innovation and handling the innovation procedure differs widely between networks. The formal social networks aim at building personal relationships among members and transfer industry-relevant knowledge to the forum. The formal networks designed with an objective of supporting innovation fund in many cases R&D work, support interdisciplinary collaboration, and provide activities that drive business development. This paper discusses how different networks can promote learning and innovation among their members, however, remembering that the network can only provide a framework – the learning and innovation is up to the members themselves to obtain.

Keywords: *Food sector networks, innovation, knowledge transfer, hands-on approach*

1 Introduction

This paper is an outcome of research taking place in the NetGrow project: "Enhancing the innovativeness of food SMEs through the management of strategic network behaviour and network learning performance" (FP7 contract no. 245301). Research for this paper is part of the work leading to Deliverable 2.3. in the NetGrow project; the report "SMEs network learning in non-EU food sector networks". This report has been prepared during 2011 by IFAU in collaboration with University of Gent in Belgium (Virginie Lefebvre), LaSalle Beauvais in France (Loïc Sauvee), and University of Bonn, Germany (Gerhard Schiefer). IFAU has conducted interviews with coordinators and participants in networks in Canada and New Zealand, and the other partners have contributed with findings from Vietnam, Brazil and USA.

The NetGrow project (www.netgrow.eu) analyses food sector networks from more perspectives: from network members, network coordinators, network as a whole, and the network in its context. Core research themes are to identify and analyse different network structures, investigate how members may benefit from participating in networks emphasising innovation and company growth, and finally also to list recommendations to how networks' organisations, activities, framework, funding and management may be improved in order to make even better, more sustainable and well functioning networks. Finally, this should lead to improved learning in networks and more innovations in companies of all sizes. An important research theme in the project is to map European food networks and compare these networks with food sector networks in non-EU countries in order to identify critical success factors of food sector networks.

2 Innovation and networks in the food sector

A network in the food sector is defined as a collaboration structure involving at least three participants with a common strategic goal. Networks may have stronger or loser ties

between the participants, there may different organisational structures and funding models, and certainly different strategic goals. This leads to the conclusion that networks are very different structures, hence they serve different purposes and in different ways. This paper will focus on social networks and designed networks and the impact of the networks on companies' innovation, figure 1.

Formal social network: a member-based network linking firms or persons through informal interpersonal relationships to provide a forum. The network coordinator and a small steering group are the key drivers of the network's development. The network is vivid as long as it meets the members' demands. Social networks are in many cases financially self-sustainable.

Designed network: a member-based network with a formal structure linking different individuals and organisations together. Members have a common goal or purpose for participating. The purpose defines the network's structure and organisation. The coordinator and network management group play a central role. Projects are essential for the network's development

(Own adaption from Lefebvre, Henchion and Hamann, 2011)

Figure 1. Defining the social and designed networks

In the context of analysing network's impact on driving innovation, it is crucial to define the concept of "innovation", figure 2. Innovation happens, when ideas and results of R&D work are implemented and lead to an improved performance of the organisation. This requires contact between people, tools to facilitate the R&D process, and tools for the commercialisation process. In this light it is essential that the network provides opportunities for people to meet and events that attract (the right) people, and – depending on the network – also provides the requested services and competences to drive R&D and innovation.

Innovation is the result of bringing R&D work into a commercially exploitable phase to create a new performance dimension.

Innovation can be found within product, material or technology development, organisational development, new markets or new processes. Sub-categories of food sector innovation include line extensions, reformulations or changes in branding.

(ENFFI project consortium, Netgrow Project and K. Hamann)

Figure 2. Defining the concept of innovation

It is important to distinguish between R&D (research and development work), i.e. work that takes place internally in an organisation or in collaboration between more organisations, and innovation. The point is that R&D provides opportunities for collaboration and experiments whereas innovation also requires procedures for implementing the results of the R&D work

into a commercialisation procedure to harvest the innovation's contribution to company growth and improved performance. This is underlined here, as many networks target "innovation" but do not offer the necessary competences and services to bring R&D work forward. Examples will be provided in this paper.

3 Food networks in Canada and New Zealand

Three networks in Canada and two in New Zealand have been investigated for the NetGrow project. It is important to understand the differences between the two countries before drawing any conclusions about networks. Canada is a very large country, and most food networks only operate within a province; and this may even include extremely large areas. Therefore network meetings are "more than networks meetings", as they provide opportunities for people to gather. Another important feature about Canadian networks is the growing focus on moving downstream. Canada is among the world leaders in agricultural exports (mainly commodities), and the federal Government has emphasised the need for focusing more on downstream innovation. Figure 3 provides short profiles of the Canadian agri-food networks investigated for the NetGrow project.

Banff Pork Seminar is hosted every January in Banff, AB. The seminar embraces 700 participants from the pork value chain including farmers, researchers, suppliers and traders, financing organisations, government and other bodies. The seminar provides hands-on information relevant to the pork value chain, social activities, and an exhibition area. The first seminar was hosted in the early 1970's at the University of Edmonton, and today the seminar has grown to be the largest pork seminar in Canada. The seminar is considered as a social network.

Advanced Food and Materials Network (AFM-Net) was founded by the University of Guelph (ON) in 2003 by initiative of the Ontario government and the University of Guelph. The purpose was to establish a network (i.e. a designed network) to drive interdisciplinary research within bio-materials and healthy food. The network members include companies, research bodies, government and other, approx. 240 members by 2011. The network provides funding for later-stage research projects, promotes collaboration between industry and academia, and supports commercialisation. Another key area is promoting PhD students into the research projects.

AgWest Bio in Saskatchewan started in 1989 as a designed network funded by the provincial government. The network targeted research and industry collaboration within GMO and vaccines, and in 2002 the network merged with two other local networks. This resulted in a broader focus on biomaterials, processing technologies, and food processing. Today, the network has developed into a not-for-profit organisation (Inc.) and has 80 members: 40% SMEs, 15% large companies, 20% are organisations, and 25% are government institutions and research facilities. AgWest Bio offers project funding, supports commercialisation, hosts conferences, and promotes the bio-economy in the province.

(Interviews with network coordinators and participants, and network's websites)

Figure 3. Canadian agri-food networks

New Zealand is a country of nearly 5 million inhabitants scattered over a country of the size of Great Britain, and 25% of the population live in the Auckland-area. This area is also the country's most important logistic hub as well as the core region for food research, production and processing. Figure 4 provides profiles of the networks investigated in New Zealand.

New Zealand Institute for Food Science and Technology (NZIFST) is a nation-wide social network organised into seven local branches. The idea is to provide local forums for bringing food industry professionals together, provide new hands-on knowledge through conferences, and a professional development program. There are more than 1,200 personal members and no corporate members. NZIFST started 40 years ago and today it is the food sector network in New Zealand.

Auckland Food and Drink Cluster (AFC) developed in 2005 from the governmental Auckland Enterprise promoting organisation. The Cluster includes 150 companies, trading organisations, government and research facilities in the Auckland area. The Cluster provides business support for investments, innovation and market development, hosts conferences and export activities, and provides contacts. The centre of the Cluster is the Auckland Enterprise organisation.

(Interviews with network coordinators and participants, and network's websites)

Figure 4. New Zealand food networks

The New Zealand government has recently decided on a strategy similar to the Canadian: to emphasise value added food production and exports of processed food rather than commodities. In order to realise this strategy, the government in New Zealand has decided to establish a new network: The Food Innovation Network (FINZ). This network is designed with four non-competing sites across the country, a central governance organisation, and a funding structure based on government funding and fees for using the sites. Each site will have a specific core competence: The site in Auckland will be equipped with state-of-the-art processing equipment so companies including SMEs can develop and test their products in larger scale than pilot-scale. Other sites will focus on wet food processing, dry food processing, and the site near Massey University will target industry-research collaboration.

4 The social networks as forums for knowledge transfer

It is quite clear, that the social networks from Banff and NZIFST have found their ways of building a forum that attracts a large group of industry professionals. The participants in the Banff seminar use this event to host additional meetings as "everybody else in the industry is here". This quote was brought forward several times among participants in the seminar underlining the importance of the seminar to the industry. The seminar has introduced two awards for innovations: One is given to the best young scientist (Ph.D. level) and the other is for an innovation that has an immediate commercial potential in the pork industry. The young scientists present their findings in poster sessions, and everybody can discuss the projects with the scientists. This promotes learning as well as inspiration for future research

themes, and as such this is the foundation for applied R&D work that can turn out as an innovation. Examples of awarded innovations that are commercialised are: new syringes for vaccination and a new watering system for the trucks transporting pigs.

The NZIFST is a network with only personal members and no corporate or institutional members. This secures that the network develops according to the members' interests, and that the network provides the services and activities that the members demand. The members of the NZIFST are industry professionals from all sectors of the food processing industry, and members stay in the network for many years – even after changing jobs. Through workshops and the Professional Development Program the network provides new inspiration and personal development to its members. It should also be underlined that knowledge targets hands-on information that is applicable in a food company. Examples could be controlling allergens or new regulations for the food industry. At the Annual Conference there are two innovation awards. One is for Excellence in Innovation, and the other is for Eco-efficiency innovation. The network plans to develop further by offering training courses for food industry professionals in New Zealand.

5 Designed networks and their role in driving innovation

In order to drive innovation a network must have a set of tools available for such procedures as well as a member base that is ready for moving R&D forward into innovation. The goal of the AFM-Net was to be the nation-wide network in Canada that could drive interdisciplinary research at the forefront and bring this research into commercial success. This is quite ambitious, but the network has accomplished this goal. The network is organised with a secretariat staffed with people experienced in project funding, business development, IPR, and commercialisation procedures. To support the secretariat there is an International Advisory Board where Canadian and foreign researchers and industry professionals (e.g. R&D managers from food companies) participate. This ensures that the projects funded are at the forefront of new knowledge and meet industry needs.

Another factor for driving innovation is the continuous support of interdisciplinary research and collaboration between industry and academia. These are essential issues in the discussion of innovation. In the Canadian research environment the idea of collaboration with institutes in other disciplines was quite new just 10 years ago. Furthermore, research tended to focus on research themes that were of relevance to the university rather than the needs of industry. The AFM-Net's efforts has changed these patterns so there is a much stronger interdisciplinary research collaboration today, and industry and academia have learned to cooperate to mutual benefit. This is illustrated by SMEs' arguments for joining the AFM-Net, figure 5.

We are a start-up company based on a technology developed in collaboration with the University of Guelph and financial support from AFM-Net to our projects.

We are a technology based company and we joined AFM-Net to expand our R&D capabilities and gain access to highly qualified staff (in research facilities).

Our company collaborates with universities and R&D groups of multinational companies, and we joined AFM-Net to expand our business network and gain access to government research funds.

(Interviews with participants in the AFM-Net, 2011)

Figure 5. SMEs' arguments for joining the AFM-Net

Interviews with participants in the AFM-Net reveal that the network has brought several innovations forward: A department at the University of Toronto participated in an interdisciplinary project, and later this project led to the creation of a spin-out from the University. Another example is a collaborative project involving a large food processing company, the University of Guelph, and the public health authorities. The core issue of the research project was development of a new healthy food product. The company would incorporate the new food product into its portfolio and this would be the commercialisation of the R&D work.

The hands-on approach of supporting companies in their innovation process is a core competence of the Auckland Food Cluster (AFC). The Cluster provides practical information, contacts and support for companies within business development and market expansion. Furthermore staff deals with obtaining permissions from local authorities and attracting foreign investors to the region. Interviews with SMEs in the Auckland region show that the companies highly appreciate this hands-on approach, as the companies generally look for information and support that is needed for a specific problem or situation. The cluster secretariat also hosts conferences and organises export promotion events for the companies to participate in. One event targeted the Hawaiian market, and many SMEs joined in. The companies benefitted from reduced costs, and the shared facilities and experiences in this new market. Another example is the cluster's experience in obtaining funding for R&D work in the companies. This has already led to several new food and drink products.

As the Food Innovation Network (FINZ) is being established now and the first facility has opened in Auckland in summer 2011, the AFC will play a very important part as bridge-builder between the local companies and this facility. In September 2011 the facility had Open Days and 700 companies visited the site, and since October the site is officially up and running. Very essential functions for the AFC are to master are continuous strengthening of its network to local companies, a strong feeling of what is going on in industry, and the ability to connect people. By mastering these disciplines, the AFC secretariat plays a leading role in driving innovation among the local food companies.

The overall vision of the network AgWest Bio is to be the driver of the bio-economy of Saskatchewan. This should be achieved by growing companies and by functioning as a

catalyst for partnerships by providing business oriented services and seed money. Another objective of the network organisation is to make Saskatchewan the preferred location for doing business in the bio-economy. The network's Board has representation from companies and from the Entrepreneurial Foundation of Saskatchewan; an organisation providing business development services and seed money. This way the Board supports the network to stay focused on driving entrepreneurial work and innovation. The network runs the AgWest Commercialisation Fund which provides seed money to early-stage companies. In 2011, 20 companies were assisted with the commercialisation procedure and obtained seed money. The companies supported operate within agricultural biotechnology, natural health products and functional foods.

AgWest Bio hosts conferences and company showcases to promote interpersonal relationships and transfer knowledge. The company showcase is an event organised 10 times per year and is an event where entrepreneurial companies can present innovations to a broader audience such as press, investors, business partners, customers and other. AgWest Bio has introduced the business mentorship program in which young companies are connected with an experienced mentor to help with business development and company growth. The network has a partnership agreement with the Food Processing Centre at the University of Saskatchewan. This centre provides facilities and equipment for companies and researchers to test and develop products and technologies.

6 Discussion of networks as innovation drivers

The above-mentioned examples show several options for designed networks to support innovation. Investigating networks across the food sectors of Canada and New Zealand reveal that the network secretariat plays an important role in lifting the R&D from the network's project into a commercial framework. The AFM-Net and AgWest Bio target the bio-economy and healthy food sub-sectors, and both networks strive to be at the forefront of the research frontier within their core topics. Member companies point to the fact that important reasons for joining a network such as the AFM-Net were to gain access research funding, the opportunities for industry-academia collaboration, and the network's experience within commercialisation. Particularly the latter seems to be a very important driver for companies to involve in such networks, as innovation-driven companies underline that an essential argument for joining a network is the ability to provide services, activities and knowledge that support the company's development; in short the network must adapt to industry's need for support, contacts and services relevant for driving innovation and the commercialisation work.

The connection of the network with access to facilities for testing and developing products and technologies is a key feature for lifting R&D work into a framework for commercialisation. AgWest Bio and FINZ both provide this opportunity. Results of this collaboration in AgWest Bio has already led to innovative food products such as new ingredients, new drinks and new products made from local berries. The same is envisioned for the plant in Auckland; the first site in the FINZ. So, access to such facilities may benefit large companies, SMEs, and researchers, as well as stimulating the collaboration between industry, the network, and researchers. If an innovation is to succeed, the network must have an organisation and a staff with the necessary tools and experience to support the company or researcher during the next phase of the innovation process. This includes IPR,

fundraising, business establishment, and guidance and mentorship. Depending on the strategy and goal of the network, the network's involvement in the commercialisation process varies. The AFM-Net and AgWest Bio both focus on providing knowledge about company establishment, transfer of IPR and support for business development; all in the light of driving innovation. AgWest Bio is even deeper involved in the commercialisation process as this network also provides seed money and investors are present on the network's Board.

As the examples from Banff pork seminar show the forum of industry and research bring forward some very applicable research themes and findings that can immediately be transferred into innovations and implemented in the pork value chain. The transfer of knowledge is up to individual participant, as the Banff seminar does not offer any kind of assistance in this procedure except providing contacts. The NZIFST targets food industry professionals and promotes a personal network among its members. Transfer of knowledge across the network and from key note speakers targets industry relevant information and the member's search for new knowledge and inspiration at a professional level. This way the NZIFST is the basis for the members to develop themselves as well as to drive R&D in the members' organisations (the food companies).

7 Final remarks

A common feature among the networks discussed above is the focus on innovation but, the approach to driving innovation and handling the innovation procedure differs widely. The social networks aim at building personal relationships and transfer industry-relevant knowledge, thus leaving innovation as an issue to solve for the members themselves. It is important to keep in mind that despite the lack of commercialisation procedures, the social networks still are key forums for providing the basis for innovation through inspiration and personal contacts.

The designed networks targeting innovation support R&D work, collaboration, and business development; i.e. the networks involve in and drive innovation forward into a commercially exploitable framework. The benefits from participating in the networks and the impact on the companies' development are the responsibilities of the network participant itself. The network can only establish a framework that can support the company in its development, and still the network is highly dependent on sufficient funding, appropriate and experienced staff, and activities and knowledge transfer appealing to participants and their involvement in network activities.

Still issues need to be solved during the commercialisation procedure particularly concerning Universities' IPR and the education of management in entrepreneurial companies as well as education of network staff. Therefore, networks with a vision and strategy of innovation must embrace and master the concept of innovation from idea, through R&D work, and the route to commercialisation.

8 About the Institute for Food Studies & Agroindustrial Development IFAU

The Institute for Food Studies & Agroindustrial Development IFAU is a private research institution based in Denmark and founded in 1982. Since then, IFAU has carried out applied research about the global food industry and agribusiness. Core competences of IFAU lie within market intelligence, research about the competitive situation, innovation and business development, and consumer research. IFAU's work covers all sectors along the value chain and can be conducted with a strategic perspective or an applied and focused perspective. The latter refers to research about a product, a situation, a geographic defined area, or an industry. IFAU collaborates with companies, organisations, research facilities in Denmark and abroad, and participates in international projects. IFAU has a strong international network.

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