PROJECT FINAL REPORT

Grant Agreement number: 613776

Project acronym: TRADEIT

Project title: Traditional Food, Entrepreneurship, Innovation, Technology Transfer.

Funding Scheme: KBBE FP7 2013

Period covered: Nov 01 2013 from to Oct 31st 2016

Name of the scientific representative of the project's co-ordinator:

Title: Dr. Helena McMahon

Organisation: Institute of Technology Tralee

Tel: 00 353 86 6011458

Fax:

E-mail: **Helena.mcmahon@staff.ittralee.ie**

Project website7 address: **www.tradeitnetwork.eu**

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Executive Summary 1 page

The successful piloting of the Regional TRADEIT Hubs-Advisor-Sub-Network model has validated the proposed approach **decentralised support infrastructure facilitated by each Hub Advisor** for providing SMEs with access to innovation and R&D expertise. Each **Hub Advisor has** connected the diverse stakeholders in Traditional Agri-Food business develops a ***new European Network***, the TRADEIT Network. At the outset of the project the network was comprised of 44 organisations, as of October 2016, the network had 385 SME organisations, 516 knowledge providers and a reach of 14,000 SMEs and 100, 000 researchers. Through this **Hubs-Advisor-Sub-Network** model, TRADEIT has ***capitalised on previous investment*** in European infrastructures (to host Hubs) and research activities (to source knowledge and technologies) and effectively facilitated the **flow of know-how,** technologies, innovation and knowledge, to and between SMEs, researchers and technology developers across Europe.

A diverse array of technology showcasing **stakeholder engagement** and **transfer opportunities have been achieved via the** knowledge exchange activities, brokerage events, missions and the SBTTR program (> 100 SMEs profiles and > 200 transfers). Over 60 training events were run involving 866 SME, > 700 participants and 418 B2B meetings took place at the 6 brokerage events, 480 SMEs attended Missions. Thematic areas included food safety, meat processing, bakery and dairy technologies, allergen management, labelling, packaging technologies, sustainable food processing plant design, geographical indications, pricing strategies, product development and marketing. Participating in these events has **accelerated SMEs engagement** in innovation, access to **FP7 projects** which has resulted in **greater integration of research players with SMEs**. This has accelerated that rate at which small food companies can **identify and capitalise on opportunities**. SMEs have reported increased capacities for targeting **new consumer segments, expanding market share, competitiveness, revenues and job creation.** SMEs have reported improvements in **capacity, efficiency, compliance, and product quality and product innovation** enabling traditional food producing SMEs to expand into previously **untapped European markets**, **increasing market share and revenues.** The action learning ethos of TRADEIT has enabled the project team to more effectively develop the TRADEIT network. The Network Support activities incorporated into the TRADEIT have positively contributed to the impact of the Technology and Knowledge Transfer Events and impact assessment.

TRADEIT has established model of best practice for delivery of entrepreneurial training and commercialisation skills to food researcher and research centres. A framework, Design4SMEs, has emerged which promotes RDI commercialisation through connecting and **fostering collaboration between the SME and Research Community**. This program has resulted in spin-outs, spin-ins, Marie Curie success, **capacity building** within research centres and has generated **motivated entrepreneurs** which collectively positively impacts on the competitiveness of regional economies. .

TRADEIT has been particularly effective in the dissemination and communication. In particular Taste of Science, a dedicated SME resource which is progressing to an open innovation platform for the food sector. In this the Taste of Science team is the mediator or facilitator of knowledge exchange between research and SMEs. ***Taste of Science will continue to*** *support the Traditional food SMEs,* ***decoding*** *much of the jargon associated with peer reviewed publications of emerging R&D innovations.* This is accelerating SME access to state of the art and opportunities for technology transfer and upgrading and **encouraging SME engagement in innovation led activities** Strategic Research and Innovation (SRIA) developed is unique in that it is entirely based upon the inputs and needs of small to micro scale producers which is hugely valuable. This SRIA has successfully prioritised future innovation activities of potential benefit to SME involved in the dairy meat and

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

bakery sectors. There are 21 actionable challenges which will be of significant value for decision making and action planning by policy makers and funders at a regional national and EU level. Actions taken based upon the SRIA findings have the potential to contribute to the development of a more sustainable SME base food system. It is anticipated that the TRADEIT SRIA will contribute to strategic policy recommendations contributing to the overall competitiveness of the Traditional Agri-food sector

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Contents

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Project Context

TRADEIT: Traditional Food, Entrepreneurship, Innovation & Technology Transfer.

The Food and Drink Industry is Europe's largest manufacturing sector outranking all other manufacturing industries in the EU in terms of Turnover (> €1.2 trillion) and employment (4.24 Million). The sector is highly diversified and fragmented in operational profile, scale and offerings. Currently 99.1% of Food and Drink companies are SMEs, 79% are Micro-SMEs, generating 51.6% of sectoral annual turnover and account for 63% of employment in the EU's Food and Drink industry (2.9 million)[1].

Consumers are increasingly aware of the food chain and its sustainability credentials and show concern for nutrition, provenance and ethical food production. Millennial' (age 21 – 38) in particular are influenced by and willing to pay a premium for foods that are "local" and "authentic". This consumer group considers food, cooking and eating as a source of recreation and adventure and constantly seeks new food experiences. This taste for artisanal, regional and ethnic foods is complemented by an increasing interest in ingredient sourcing and relationship building with suppliers at local food markets and speciality stores. These consumers value the specific link that smaller scale food producers have with a specific area. This sense of identity, history and place is increasingly reassuring for consumers and is reflected in the brands that they support.

In parallel there been a huge shift in food culture and engagement. Whilst consumers are demanding traditional and craft foods it is expected that the food market can be accessed, experienced and delivered within the hyper connected social and technological networks within which consumers operate. Meeting and responding to this market demand is a major challenge for the small producer and an even greater challenge for the micro-scale SME, which has less than 10 employees and generally fewer resources. Significant innovation is required to meet this growing market demand for authentic traditional food products with nutritional content, sensory value and convenience that meet 21st century regulatory standards for traceability, environmental impact and sustainability. Furthermore, to gain market share in an increasingly global European food market, new business models and approaches to supply chain, marketing and distribution are required.

Traditional food production (TFP) is highly competitive and faces a number of challenges from lower cost 'commodity' products which are much more readily available. The specialist and niche nature of many traditional foods is one of the main challenges faced by producers, but is also their most valuable asset. Technology utilisation is frequently presented as being at odds with the essence of artisanal/traditional food production. However, technology can be implemented in a range of ways to support production, distribution, sales and packaging that have a very positive commercial impact without loss of integrity in the essence of the product itself. The technology transfer activities aimed to reconcile these 'competing' pressures and to support the adoption of technology in a way that respects the ethos and traditions of artisan food production.

[1] FoodDrinkEurope (www.fooddrinkeurope.com)

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Traditional food producers, like many small businesses, face increased competitive pressure, prompting them to look for ways to add value or strip out costs through the adoption of new technology, processes and practices. In her book "The Life of Cheese" (2012) Heather Paxson discussed the range of conflicting values that frequently underpin the artisanal movement, and the rise in desire to produce food locally. She highlights the ways in which artisanal practices are often not self-sustaining because even wealthy urban consumers who are 'obsessed' with artisanal culture, the so called 'locavores[2]', are not willing to pay what it takes for a traditional producer to earn a reasonable wage. Nevertheless, with the demand for traditional foods continuing to grow, TFP SMEs are being encouraged to use their flexibility and agility to orient their strategies towards the marketplace, perhaps by focusing less on the product in order to take full advantage of the opportunities that arise. The call, in essence, is for the traditional food producing SME to be more entrepreneurial and innovative in all aspects of their business model design.

A survey undertaken by SME-Net4[3], a network of SMEs working in the European food industry, considered the level of innovation throughout the industry. They found that smaller companies were in fact as or more likely to be innovative both in terms of product and market development as very large companies. "Although often lacking the research capacity of larger enterprises, SMEs can be skilled 'informal' innovators with a high motivation to invest and a strong ability to react swiftly to new opportunities in their market" (ibid, 6). It is perhaps because of this inherent nature in the sector that knowledge and technology are absorbed in different ways, for example through trusted intermediaries or as a consequence of referral from 'fellow travellers'. Peer to peer learning is a substantial element of knowledge and technology transfer in this sector and this has implications for the way in which technology is presented to them.

Effectively delivering product, process and organisational innovations is challenging for Traditional, Craft and Artisan Food producing SMEs. Frequently in the case of SMEs the innovations and solutions required already exist or require an incremental innovation step. Few have the in-house capability or capacity for research and innovation and seldom possess the financial and human resources required to participate in collaborative projects with universities or research centres. Furthermore, the reality is that the majority of SMEs do not have the time, skills or knowledge required to identify, source and adopt new technologies and best practices needed. This is becoming increasingly difficult in the case of knowledge and innovations emerging from EU funded activities that have the potential to provide solutions, because although it may be highly relevant to their needs, they are unaware of its existence

Currently there are more than 286,000 food producing companies satisfying the wide ranging and evolving needs of Europe's 500 million consumers. Whilst the export market is of high importance and value, the size of the European market itself provides significant opportunity for companies, in

[2] The word "locavore" was coined by Local Foods Wheel co-creator Jessica Prentice in 2005 and refers to people who eat only foods grown or harvested within a 100 mile radius of their home.
[3] SMES-NET is a Specific Support Action funded under the Community's Sixth Framework Programme Thematic Priority 5: "Food Quality and Safety", Contract n° FOOD-CT-2005-514050 (http://smes-net.ciaa.eu/asp/home.asp)

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

particular SMEs wishing to expand market share, especially if they can innovate and increase productivity.

The direct and indirect employment that SME-scale food production generates is a critical economic input for European Regions. This employment is particularly relevant in the case of Traditional, Craft and Artisan Food producing SMEs which are typically family run micro-scale businesses in rural, coastal and mountainous locations. Furthermore, the Traditional foods that many of these firms produce are an integral element of the cultural heritage of each member state. Consequently, the sustainability of these firms and their territorial produce is critical as it impacts both socially and economically across the regions.

Recognising that this issue requires significant investment and support the European Commission prioritised the area and, in the last round of FP7 funding (2013), committed eight Million Euro for the development of two coordination and support actions. One of the projects selected for funding was the TRADEIT project, and a sister project Trafoon. Both projects were to address the same suite of SME and RDI commercialisation challenges across different sectors.

In the case of TRADEIT a consortium of 19 organisations set out on November 1ST 2013 with a mandate from the European Commission to develop a new European Network of Traditional Agri-Food Stakeholders. The Network was to collaborate and cooperate towards increasing the competitiveness of SMEs in the food sector, through the transfer of knowledge and facilitation of innovation. The project and the Network which is known as TRADEIT - ***Trad***itional Food, ***E***ntrepreneurship, **I**nnovation and ***T***echnology Transfer - focused specifically on supporting SMEs in the dairy, meat and bakery sectors.

The overarching TRADEIT project objectives were to:

1. Create an EU wide network of stakeholders in Traditional Agrifood Sector.
2. Facilitate the transfer of knowledge to SMEs.
3. Address the innovation skills gap in food research community.
4. Develop a strategic research and innovation agenda for the sector.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Main S&T Results

The TRADEIT Network development and support program was divided into 6 pillars, each of which corresponded to a specific workpackage: **2)** Technology Transfer, **3)** Knowledge Transfer, **4)** Entrepreneurship, **5)** Networking and Collaboration, **6)** dissemination and development of strategic research and innovation agenda (SRIA) for traditional food producing SMEs.

Technology Transfer

The overall aim of WP2 "Technology Transfer' was to facilitate the transfer of Technology between regional centres and SMEs through the conduit of Regional 'Traditional Food' Knowledge and Technology Transfer Hubs. The technology transfer team was tasked with piloting a potential a Regional TRADEIT Hubs-Advisor-Sub-Network model as an approach for providing SMEs with access to innovation and R&D expertise connecting the diverse stakeholders in Traditional Agri-Food business (SMEs, clusters, associations, National Technology Platforms, Food Researchers, Food safety Networks, Business and Entrepreneurial Networks) to facilitate TFP SME access to third party technology expertise.

There were 5 associated objectives **1)** establish 9 Regional 'Traditional Food' Knowledge and Technology Transfer Hubs, **2)** understand needs & barriers to successful technology transfer in regional 'traditional food' clusters. **3)** profile relevant R&D projects and technologies at a regional, national and international level, **4)** deliver Small Business Technology Transfer programme (SBTTR) to regional 'traditional food' clusters and **5)** evaluate the role and impact of Regional 'Traditional Food' Knowledge & Technology Transfer Hubs and the Small Business Technology Transfer programme. The targeted impacts were the increase transfer of technologies and best practices to SMEs leading to improvements in **capacity, efficiency, compliance, product quality, safety and innovation** enabling traditional food producing SMEs to expand into previously **untapped European markets**, **increasing market share, revenues and regional competitiveness.** All of which was to be carried out with a respect for the artisanal nature of the enterprise and products produced

WP2 objectives were fully realised through seven WP2 Tasks and verified by the 14 deliverables for Technology Transfer. Of the 19 partners in the TRADEIT consortium, 16 were directly involved in the work of WP3 (160.75 Person Months). 36.43% of the TRADEIT project effort was dedicated to Technology Transfer, which was led by Dr. Joan Lockyer, Coventry University, UK.

The first steps in the Technology Transfer activities was to establish the 9 TRADEIT Hubs in eight partner countries: Finland, Germany, Ireland, Italy, Poland, Portugal, Spain, and the UK
and provide the technology transfer team with an introduction to the harmonised framework to be rolled out in parallel across the 9 Hubs over the course of the next 3 years.

This harmonised framework was a decentralised, regionalised, grass roots approach to SME engagement, collaboration, technology transfer and knowledge exchange **facilitated by each Hub Advisor who** connected the diverse stakeholders in Traditional Agri-Food business (SMEs, clusters,

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

associations, National Technology Platforms, Food Researchers, Food safety Networks, Business and Entrepreneurial Networks). This decentralised model is characterised by strong **socially inclusion credentials** facilitating **regional engagements (in mountainous, rural and costal locations), in the local language removing the time and language barriers to event participation** frequently encountered by SMEs.

Once the regional hubs were in place and the Hub Advisors positioned to manage and support the regional sub-networks the next steps was to carry out a needs and barriers analysis which explored technological, operational, business and innovation needs and opportunities of SMEs in the TRADEIT Network. In achieving this 340 questionnaires and 20 workshops were completed across the Hubs. This was a critical activity as it provided significant insights and framing on technology areas that the WP2 team should explore in order to respond directly to the process and operational needs of the SMEs at a regional and sectoral level.

The next phase of activity was the development of the Electronic Marketplace[4] (the Marketplace) which was developed as an open innovation platform that promotes "*the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively*"[5]. The foundation of the concept of open innovation is the integration of ideas, expertise and skills from outside the organisation with resources inside it. In essence, external ideas (knowledge or innovation) are combined with the firm's own innovation/entrepreneurship/knowledge to solve a problem. The flow of information can be multi-directional. The aim is to take advantage of dormant, redundant, or surplus knowledge from one source and to look for fresh insights on its use and adoption. As a result the Marketplace has played a central role in supporting technology transfer across the hubs and their sub-networks acting as a broker of technology, knowledge and innovation in the form of "offers" and "request" for the agri-food community. In addition to facilitating technology and knowledge transfer, the Marketplace supports innovation partnership development between technology providers and the traditional producers in the dairy, meat and bakery sectors. The conceptual model of the marketplace is detailed in Figure 1.

[4]https://marketplace.tradeitnetwork.eu

[5] Chesbrough, Henry William (1 March 2003). *Open Innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business School Press. ISBN 978-1578518371.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

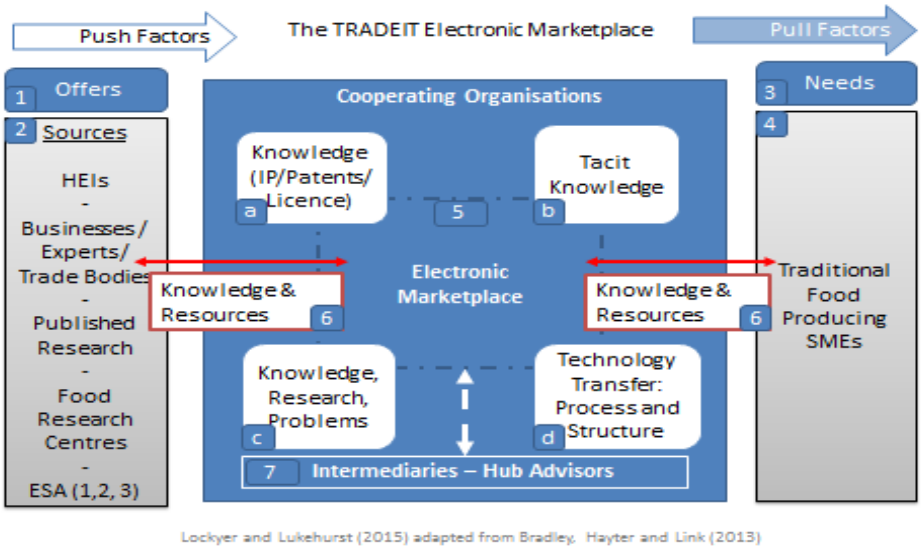


Figure 1: Conceptual model of the operational framework of the TRADIET Electronic Marketplace

While the model acknowledged different types of knowledge, it initially placed a heavy reliance on engagement with the online platform. In reality intermediaries - Hub Advisors - were needed to support knowledge and technology transfer. This acknowledged that communication was both formal and informal and had a strong focus on peer to peer learning and social capital.

With the Marketplace in situ the next phase of activity was the profiling of businesses (SMEs, technology providers and SME) in addition to suitable and relevant technologies (as directed by the needs and barriers findings) which would populate the Marketplace and form the key offerings and content of the Technology Transfer events. In total 1,390 members were profiled via the 'Marketplace' with the full breakdown of companies by country and partner type is detailed in Table 1. From these members 645 technology profiles were added to the 'Marketplace'; the majority of these were technology needs and offers (Table 2). SMEs, with support from the Hub Advisors, could search the 'Marketplace' for potential technology solutions.

The majority of technologies profiled were at technology readiness 9. The technologies that held the most appeal to SMEs were those that could be adopted immediately and were tried and tested. This influenced the range of technology profiles that were updated, but also increased the rate of adoption of technology as evidenced in the SBTTR outputs (Figure 2). With technology needs the peaks of interest were in the early stage technology developments and in the later stages, where products are expected to be ready for market. The spike at TRL 6 matches with the desire for partnership for product testing and prototyping (Figure 3). The range of TRL 9 technologies matches the distribution of SBTTR outputs across regions and sectors, with the highest take-up being recorded in Poland by the dairy sector (Figure 4).

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

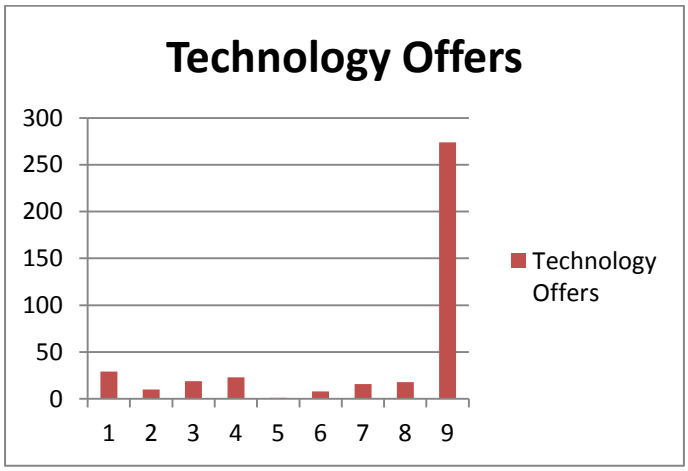
Members by Country	TRADEIT Member	Associate Member	Public	Total
Finland	24	0	19	43
Germany	89	30	3	122
Ireland	115	18	13	146
Italy	59	24	153	236
Poland	236	71	22	329
Portugal	70	11	20	101
Spain	132	15	22	169
UK	99	10	8	117
Others	30	2	68	100
	854	181	328	1363
TRADEIT TEAM				27
Total				1390

Table 1 Marketplace Profiles: TRADEIT network members by Hub and membership type.

	Business		Partnership		Technology	
Countries	**Business Need**	**Business Offer**	**Partnership Need**	**Partnership Offer**	**Technology Need**	**Technology Offer**
Finland	4	8	3	1	7	7
Germany	2	14	1	7	53	88
Ireland	1	0	2	6	15	25
Italy	1	1	2	0	1	21
Netherlands	0	0	0	0	0	13
Other	0	0	1	1	0	34
Poland	0	0	0	1	25	142
Portugal	0	9	0	0	17	4
Spain	0	17	7	7	12	57
UK	1	1	1	1	8	11
Sub-Total	**9**	**50**	**17**	**24**	**138**	**402**
Total for project	**645 including 5 discussion requests**					

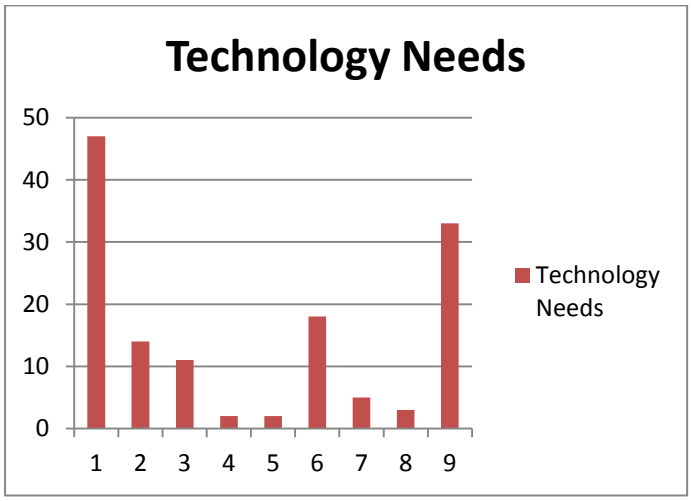
Table 2 Marketplace Opportunities: profiles per Hub and opportunity type Business, Partnership or Technology (need or offer).

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.



TRL	Technology Offers
1	29
2	10
3	19
4	23
5	1
6	8
7	16
8	18
9	274

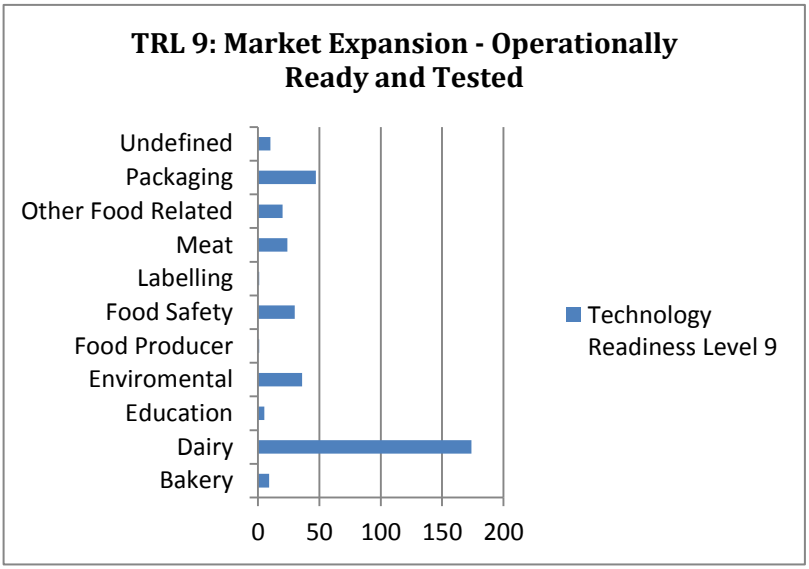
Figure 2: Technology Offers classified by TRL Level



TRL	Technology Needs
1	47
2	14
3	11
4	2
5	2
6	18
7	5
8	3
9	33

Figure 3: Technology Needs classified by TRL Level

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.



Sector	TRL 9
Bakery	9
Dairy	174
Education	5
Environmental	36
Food Producer	1
Food Safety	30
Labelling	1
Meat	24
Other Food Related	20
Packaging	47
Undefined	10

Figure 4: Distribution of technology TRLs across sectors

The Technology Transfer events, took three main formats ***1)*** brokerage events, ***2)*** SME 'Missions' and ***3)*** the small business technology transfer program, all key mechanisms, opportunities and platforms for technology transfer. In total **6 regional sector-specific Brokerage Events** took place, one per sector (Dairy, Meat, Bakery) and 3 showcasing technologies in the areas of food safety, packaging and sustainability (waste, water and energy management). Each Brokerage **events** brought together SMEs, enterprises, universities and R&D organisations together from across Europe to share information, or acquire technology, commercial or research collaborators. This was a highly effective approach for catalysing the process of technology profiling, networking and the SBTTR process post brokerage. Each of the 6 brokerage events were characterised by sector or technology focus, technology showcasing, networking and in particular the B2B meetings (Table 3)

Brokerage Event	SMEs	Technology Providers	TRADEIT	Total	Meetings
Bakery	38	24	20	*82*	54
Sustainability	42	67	25	*134*	103
Packaging	54	130	17	*201*	171
Meat	43	32	24	*99*	73
Dairy	39	44	10	*93*	152
Food Safety	48	23	23	*94*	74

Table 3: Brokerage Events: details per event of number of attending SME, Technology providers and B2B meetings.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

The 'Missions' aimed to bring people with a common problem to solve together with those who may be able to provide a solution, or at least move the problem closer to resolution. The missions took a variety of forms classified as: micro, meso and macro in terms of their focus and scale.

- The **micro mission** may be a small group (less than 10) of producers in a particular region or sector who share a common problem. In this respect the mission is highly focused and more of a round table discussion facilitated by the Hub Advisor and supported by relevant experts with knowledge of the specific issue to be addressed. Micro scale missions may also be necessary to reflect the wide geographic spread of artisans in some Hub regions.
- The **meso mission** may be larger in scale (10-19 participants) and address a more general or wider scale problem within a sector or region. These events acknowledge that a solution to a problem may be regional, rather than product or sector specific.
- The **macro missions** (20+) may be industry wide and be of more relevance to the larger scale producers. It reflects the understanding that the concept of the SMEs represents a vast array of businesses, some with many employees and a complex infrastructure. While to some the term 'artisan' may no longer be relevant to businesses of this scale, we recognise that the problems faced by medium sized producers still need to be addressed and their valuable experience shared with smaller scale producers. The macro mission may also relate to a specific sector or cluster, regardless of the scale of the producer.

Open innovation, collaboration and competition are referred to as "an important trinity" [6]. "Open innovation competition means that collaboration around common (socio-economic or business) challenges is essential whereby each party brings its competencies and competitive strengths, often with previously unrecognised synergies" (ibid). This has been our experience in TRADEIT, specifically with respect to technology and knowledge transfer.

The Brokerage events, SME 'Missions' and practical sessions, resulted in high levels of collaboration, cooperation and innovation. Both created opportunities for SMEs to access the knowledge and technology through the marketplace, they seem to prefer the personal touch, with access mediated by people they trust. The hands on co-creation events proved to be of highest interest to traditional food producers, and enabled the type of face-to-face interaction preferred to share technical problems and offer each other solutions, based on use of technology or know-how built up through years of practical experience. Events that took place within the normal working environment of the food producers were found to be highly effective, for example the bakery mission 'Traditional Baking in Europe – Learning from Each Other' hosted by Institute Polytechnic de Braganza (IPB) & Pão de Gimonde Bakery in Bragança, Portugal and the 'The Meat Mission - How to Produce Charcuterie and Cured Meats' hosted by the Institute of Technology Tralee (ITT) and a TRADEIT network member Gubbeen Farm, in Schull, West Cork, Ireland were hugely successful both in terms

[6] https://ec.europa.eu/research/innovation-union/pdf/b1_studies-b5_web-publication_mainreport-kt_oi.pdf

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

of technology transfer and knowledge transfer. This approached emerged as the model of best practice for achieving high impact transfer within SME operations.

The Small Business Technology Transfer Program (SBTTR) process encapsulates most stages of WP2 activity and aimed, through a series of stages outlined below, to support SMEs to the point of formal technology transfer. This five stage process starts with company audits and profiling and ends with the transfer of technology. The stages are:

Stage 1: A company visit and technology audit
Stage 2: Identify relevant technology needs and technology offers
Stage 3: Partners searching [for partners and collaborators] via the project database, brokerage events, SME missions and external technology databases
Stage 4: SME support for innovation, financing and intellectual property rights
Stage 5: SME support for contract negotiating (licences, subcontracting and commercial agreements)

It is important to note that although the stages are presented as linear, they are in fact iterative. The SME with support from the Hub Advisor may have to cycle through stages 1 to 3 several times before the process is completed satisfactorily. This is time consuming, but capturing the full profile and needs of the SME and the technology provider are vital in 'matching' needs and offers. The tables below show the total SBTTR data by stage (Table 4) and a breakdown by Hub (Table 5):

Stage 1	
14,124 SME reached	1354 company profiles
Stage 2	
635 technologies profiled	
Stage 3	
935 participated in events 78 problems and solutions identified	
Stage 4	
101 in discussions / contracting / collaborating	
Stage 5	
50 Completed transfers	

Table 5: Small Business Technology Transfer Program: Participant and progress per stage of SBTTR process

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Hub Region	Stage 3	Stage 4	Stage 5	Total
Germany	15	20	3	38
Finland	2	5	12	19
Italy	15	3	1	19
Ireland	10	12	16	39
Poland		34		34
Portugal	17	8	3	28
Spain (CF+i)	8	7	7	22
Spain (ITENE)	5	6	3	14
UK	4	6	7	17
Overall	78	101	50	229

Table 6: SMEs per TRADEIT Hub Stages 3 to 5 of SBTTR process.

In Table 6 the focus is on reporting SBTTR Level 3 – 5, as from level 3 the business is actively searching for a solution to the problem identified. Not every business that starts the SBTTR journey completes it. The firms detailed above are TRADEIT Network members who are still actively engaged with the Hub in the process. Many of the 935 companies (Table 3) that attended TRADEIT events are still engaged in the project and may complete further stages, but those highlighted as SBTTR businesses are the companies most likely to continue to progress.

Brokerage events and SME 'Missions' were a crucial and successful feature of the technology transfer process. This approach linked well with the open innovation and co-creation ethos we aimed to foster and encourage. Both technology providers and the SMEs found 'face to face' the most successful type of engagement. Six brokerage events and 9 'Missions' were written into TRADEIT. While all brokerage and missions' events were successful, Missions hosted by IPB and ITT were a triumph of co-creation and innovation.

The SME 'Missions' formed one of the final stages of the support for technology transfer process. The original intention was to hold 1 SME 'Mission' per Hub and aim to attract around 20 SMEs to each event. Through the process we learned that single events were not always successful and that a range of events, specifically targeting smaller groups may be more cost and time effective. Asking SMEs to travel to an event was also not always successful and so we needed to consider a range of solutions to delivery of the 'Mission' outcomes.

Using a wide range of 'Mission' approaches, most of the Hubs well exceeded their target of 20 SME participants in the missions. Many of the Hubs used a combination of the above approaches and overall the missions attracted over 480 participants to events (the target was 180 SMEs).

From the range of activities undertaken by WP2 and WP3, a broad range of impacts were recorded using a standard set of impact statements. Overall over 1,700 project impacts were registered against these statements. The data was captured as part of a survey of the SMEs that have engaged with TRADEIT and it records what they feel they have gained most out of collaborating with the project.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Knowledge Transfer

The overall aim of WP3 'Knowledge Transfer' was to transfer knowledge to traditional food producing SMEs in key areas related to their competitiveness, using hands-on training and novel approaches to learning. This was facilitated through the nine Technology and Knowledge Transfer Hubs established by the TRADEIT project in eight partner countries: Finland, Germany, Ireland, Italy, Poland, Portugal, Spain, and the UK. Of the 19 partners in the TRADEIT consortium, 15 were directly involved in the work of WP3 (102.5 Person Months). 23.16% of the TRADEIT project effort was dedicated to Knowledge Transfer. The Knowledge Transfer activities were led by WP3 Leader, Dr. Catherine Halbert (Halbert Research, Ireland).

There were five main objectives in WP3: 1) To develop 9 Training Module choices; 2) To deliver train the trainer events; 3) To implement regional knowledge transfer activities involving a wide group of SMEs; 4) To deliver online training materials; and 5) To evaluate the effectiveness of the knowledge transfer activities. These objectives were fully realised through the six WP3 Tasks and the successful outputs of WP3, as verified by the eight 8 Deliverables for Knowledge Transfer.

The nine core training modules were developed by designated project partners, starting with the first four in period 1 of the project, namely**: 1)** Food safety and quality management for the small-scale traditional food sector (HRES); **2)** Competitiveness, cost models and pricing strategies for the traditional food sector (HRES); **3)** Food labelling and marketing for geographical indications and traditional specialities (IPB); and 4) Supply chain management and distribution networks for small scale food producers (ITENE). In period 2 of the project, the remaining five Modules were developed, namely; 5) Environmental management and performance of traditional foods (ILU); 6) Optimised facility design and production protocols in traditional food manufacture (HRES); 7) Consumer-led product development strategies for traditional foods (SAV); 8) Smart use of IT in traditional food production systems (CUE); and 9) Innovation, IPR and related legal issues for the traditional food sector (CUE). The modules were composed of comprehensive PowerPoint slides built to an agreed format, supplementary notes and other training resources, a suggested Agenda, and proposed approaches for delivery, timing, and duration of the training (all in the English language). They were designed to be suitable for traditional food producers in the three target sectors: bakery, meat and dairy. They were developed by the designated subject experts within the consortium partner organisations (HRES, IPB, ITENE, ILU, SAV, and CUE) and uploaded as core training content on the internal TRADEIT Drive for review by all partners. This core content, resulting from a considerable amount of effort and collaboration, was the basis for the localised training and knowledge transfer activities scheduled to take place at each of the nine Hubs across the eight countries.

In order to prepare for the development and roll-out of the localised workshops, two 'Train the Trainer' events were held. The first event was hosted by the Spanish Hub in Valencia (ITENE) during the 9th and 10th of April 2014, and the second event was hosted by the Finnish Hub in Kuopio (SAV) on the 19th and 20th May 2015. These events were well attended by the module developers, trainers, subject experts, hub advisors, the TRADEIT partner food companies, work package leaders and other project partners. The main objective was to introduce the core Module content and collaboratively

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

develop the implementation plan for the Knowledge Transfer Programme across all TRADEIT Hubs. Both two-day intensive events facilitated a common understanding of core Module Content, and enabled the discussion of key issues relating to the roll-out of approved and customised training programmes at regional and local level in the Hubs.

Hub Advisors at the nine Hubs originally selected modules for their Hub based on their capacity to deliver such knowledge transfer. Trainers at each Hub were responsible for customising, localising, and translating the module content, using core training materials produced by module developers, and based on topic preferences of the food producers. A TRADEIT Trainer Directory was developed, profiling 66 trainers across the participating countries and providing their contact details. Guidelines were provided by the WP3 Leader, to help standardise the process across Hubs and she also visited Hubs directly for consultation with trainers, hub advisors and to meet local food companies. The localisation activities required a high work load on Hub Advisors and their selected trainers, as all of the training materials had to be translated to the local language (Finnish, German, Italian, Spanish, Portuguese, or Polish). In addition, the needs of the local SMEs had to be considered (helped by the Needs and Barriers Analysis conducted by the Technology Transfer team) plus further consultations carried out by Hub Advisors locally. Many Hubs engaged with relevant local and regional food and business associations, agencies and authorities. An open and flexible approach was taken on how the training could be delivered at local and regional levels; over a single day, morning, or afternoon, or split over 2 days, depending on the preference of the food producers. Some Hubs provided additional seminars and workshop based on emerging needs of their food producers. In some instances, companies from one Hub attended training sessions at another Hub, or food company owners transferred knowledge through speaking and presenting at Hub events. Flexibility and adaptability was required to respond to the SMEs, in particular to deliver the training when the food companies were generally constrained by extremely busy schedules. Module topics were highly relevant and the food companies benefitted from the training events in many ways, as demonstrated by impact assessments. The high standards and professional approach taken by module developers and trainers was especially appreciated, with mainly positive feedback from each event.

The original targets were exceeded in terms of the number of TRADEIT training events; 60 training events were completed across the nine TRADEIT Hubs over the duration of the project (the target was 31). 1178 participants attended these events of which 866 were SME food producers. Learning by the traditional food producers through participation in workshops was further enhanced by knowledge transfer that occurred through other related project activities, for example brokerage events, SME missions, entrepreneurial academies, and case studies. Knowledge transfer events were an integral part of the formation and consolidation of the TRADEIT network, as they provided an opportunity for the food companies to meet frequently and engage with each other, as well as with the trainers and Hub Advisors. Hub Advisors were key facilitators in the knowledge transfer activities providing local and regional knowledge as well as critical insights to the needs of the SMEs in their local and regional networks. All of the training materials developed, localised and delivered at each Hub were stored on the TRADEIT internal Drive, along with copies of workshop Agendas, Photos,

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Registration Sheets and Feedback Sheets (from the food companies participating at the training) from every event.

In order to make the knowledge transfer material available to a wider group of traditional food producers outside of the consortium and TRADEIT network, training materials were selected for uploading to the TRADEIT public website. Here, under the home page Tab 'Knowledge Transfer', users are directed to the workshop resources for food producers and trainers. This Tab brings the user to a Knowledge Transfer page where they can click on the flag of the country that participated in TRADEIT and directly access resources in the form of downloadable PowerPoint slides, supplementary notes, selected photos from the Hub training events, and a suggested agenda to deliver the training (useful for trainers). These useful materials are available in English, Finnish, German, Italian, Spanish, Portuguese, and Polish. The number of courses available in each language is determined by the number of events held at the relevant TRADEIT Hub.

On-line learning units were also developed based on the original knowledge transfer materials, and the customised and localised workshops delivered at Hub level. Starting with a pilot unit (based on Module 1 Food Safety), the remaining 8 units (based on Modules 2-9) were developed in close consultation with the original module developers, Hub advisors and wider consortium and network. This required a high level of effort and was a very iterative process. The result is the 9 online learning units called Online Courses for Traditional Food Producers available in English and fully accessible on the TRADEIT public website. There was a conscious effort to minimise the number of clicks that the end user would need to make in order to get straight to the units, bearing in mind that the training is aimed at busy SME owners or their personnel. The learning units are intended to provide traditional (or other) food producers with an introduction to the different aspects important in running a food business, such as: food safety and quality; competitiveness; food labelling; supply chains and distribution; environmental management; product development; plant design and GMP; Information Technology; and Intellectual Property.

The on-line units are delivered as a short series of slides meant to engage the learner for between 30 to 60 minutes. The unit materials in English are supported by the localised resources in the 7 different Hub languages, as described earlier. A standardised approach was used for the presentation of each unit, with attractive icons, photos, straightforward introductions, and acknowledgement of the EU funding. Key elements included: an introductory slide, a welcome slide to introduce the unit; a 'Menu' Tab to provide navigation for the learner and allow them to skip to individual topics; a 'Resources' Tab bringing the learner directly to useful supplementary notes; Key Learning Points to clarify what the learner is expected to understand at the end of the unit; and a structured outline of each unit, clearly identifying its content. Different learning features are incorporated in the slides, including: definitions, information in 'bite-size' segments, with options to click for more detailed information; links to video material or to further internal or external user-friendly resources; multiple choice questions; and reflections for the learner.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

The impact and effectiveness of the knowledge transfer activities and SME skill improvement was formally assessed throughout the TRADEIT project using several approaches and involving all WP leaders, Trainers, Hub Advisors, the traditional food producers (SMEs), and project partners and network members. Formal feedback sheets were completed by the participants on the day of the training event, and a survey of the participating food companies was carried out more than 12 weeks after each training event to determine if the learning had been sustained and put into practice back at the food companies. Formal feedback was also garnered from Hub Advisors after completion of their full suite of training events, summarising their training activities, what went well, what did not go so well, and what they would do differently in future. Action learning and network analysis led by Professor Paul Coughlan [TCD] provided a valuable input to the delivery and assessment of learning, and stimulated creative thinking on how the knowledge transfer might best take place. The original needs and barrier analysis and other formal surveys led by Professor Joan Lockyer [ITENE] provided a very useful baseline to understand the target food companies. Useful information on the effectiveness of the learning was also captured through observation and feedback at the many brokerage events and SME missions; these events provided a great opportunity to engage with the food producers one-to-one and enable knowledge transfer both ways. Their progression and learning was captured very nicely in the TRADEIT case studies. The Entrepreneurial Summer Academies led by Ms. Breda O'Dwyer [ITT] involving food producers and researchers provided another opportunity to understand the needs of the food companies, and observe exciting learning opportunities in a dynamic and vibrant setting. The two-way transfer of knowledge from food companies to the researchers (and vice versa) and to the wider TRADEIT team was particularly interesting. Professor Brian McKenna [EFFoST] gathered very useful information from SMEs for the Strategic Research Agenda, which helped to highlight both knowledge and technology needs of food companies and their insights into the core research challenges that need to be solved. Through contributions by SMEs to the Taste of Science and other dissemination tools led by Dr. Jeroen Knol [EFFoST], we received a broad perspective on both the knowledge needs of companies as wells as the knowledge they had to share. Blog, Tweets and project videos further captured information on knowledge transfer, particularly tacit knowledge of traditional food producers. Finally, presentations by the food companies and their Hub Advisors at the TRADEIT and Trafoon Joint Conference in Brussels on the 19th and 20th October 2016 encapsulated the true meaning of the knowledge transfer process and impacts.

Entrepreneurship

The low utilisation and implementation of valuable research outputs within the SME community is an acknowledged problem, not just in the food sector, but across the wider research community. TRADEIT's entrepreneurship activities focused on developing the entrepreneurial and technology commercialisation skills of researchers. The ultimate goal was to create a culture where researchers look to SMEs as a route to market for the implementation of their research outputs, whilst in parallel, providing SMEs with access to innovations, new knowledge and partnerships. Of the 19 partners in the TRADEIT consortium, were directly involved in the work of W43 (48 Person Months).

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

10.87% of the TRADEIT project effort was dedicated to WP4 Entrepreneurship. Activities were led by WP3 Leader, Breda o Dwyer, Institute of Technology Tralee.

There were 5 key objectives associated with WP4, specifically 1) To develop and deliver the 'Food Enterprise Training Programme', 2) To develop and deliver the 'Research-Business Cooperation Training Programme' 3) To host three TRADEIT Food Researcher Entrepreneurial Academies, 4) To promote a culture of Innovation and Entrepreneurship in European Research Centres and 5) To evaluate the role and impact of Entrepreneurship led training programmes

Towards achieving this goal 3 training programmes have been developed, **1)** Food Enterprise, **2)** Researcher Business Co-operation and **3)** Research Centre Innovation and Entrepreneurship Training Programmes, which were delivered collectively over as part of a 4 day residential Entrepreneurial Summer Academy (ESA) with a total of 3 academies delivered over the duration of the project.

The Entrepreneurial Summer Academy (ESA) model was conceived by experienced enterprise educators, scientists, business advisors and agri-food specialists. Some of the preconceived ideas of what was needed have proved to be accurate and highly justified. Others have been challenged and the model of best practice that has emerged has been tried and tested, but we believe it is not yet the end product. In the principles of design thinking and action learning, it will never really be finished, but rather a perpetual work in progress. We believe that we have provided a viable and effective template that could be applied to any disciple or ideally multi-disciplinary group of learners.

The ESA aimed to develop a model of best practice for the provision of entrepreneurial training specifically targeting the needs of food researchers. It aimed and achieved the enhancement of the capacity and capability of research organisations to collaborate with businesses and of researchers to establish spin-out companies. The low utilisation and implementation of valuable research outputs within the SME community is an acknowledged problem, not just in the food sector, but across the wider research community. The ESA aimed to help researchers with the potential to have a positive impact on TFP SMEs and to create a culture where researchers look to this sector as a potential avenue for the implementation of their research outputs. The Needs and Barriers Analysis (D2.2) identified that SMEs find it difficult to access current research in their sectors. Researchers are not aware of the commercialisation potential of their research or how to go about bringing their innovation to market. The ESA addressed both of these barriers to research commercialisation and market adoption in an applied and effective manner.

The development and delivery of the ESA model has been iterative and an example of action learning in practice and in line with Work Package 5. The WP4 team built the model of the ESA on the principles of action learning and also evidenced action learning throughout the delivery of the suite of academies. Each academy was successful in its own right, but each also highlighted the potential for improvements, which as a team we acted upon to produce an improved model – working towards a model of best practice.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

In terms of key pedagogies, the ESA model had utilised a number of approaches and found that most of them add value to the programme, with a number of commercial related scientific and technical results which are presented in table 7 to provide insights, however this will continue to adapt the approach as the project progresses:

	ESA1	ESA2	ESA3	Comments
Poster Presentation	●	●	●	Posters have been a very useful part of the ESA approach. Researchers are familiar with presenting their work in this way. Our requirement was for them to do so from the perspective of a commercial pitch for their work, which they found more challenging. Each year we increased the guidance we gave on poster design as many continued to stress only the technical and scientific significance of their research and not its potential utility value.
Breakout Sessions	●	●	●	More breakout sessions were requested with each ESA. Students really value this time to discuss and work together
Interactive Workshops	●	●	●	No lectures, but discussions with a brief introduction. Providing resources in advance was essential for this to work.
Mind Mapping	●			Proved less effective for many students
Reflective Learning	●	●	●	This was often facilitated by the WP4 and TRADEIT team.
Role Playing	●			Was not necessary or effective.
Action Learning	●	●	●	This was practiced throughout the ESA development process and was embedded within the ESAs.
Case Studies	●	●	●	Highly effective throughout, but the most effective was a single case study approach.
Team Work	●	●	●	In ESA 1 and 2 we tried too hard to mix the teams as often as possible. This was not necessary or really as productive as we imagined it would be. In ESA 3 we created teams that worked together throughout the programme and this was more effective.
Ask the Expert	●	●	●	Having technical and business expertise on hard to support discussion was very effective. The TRADEIT team was fortunate to have a broad body of expertise for the participants to tap into.
Panel Pitching	●	●	●	The participants found the pitching part of the

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

				academy both very challenging and very valuable. Most of them had not had to justify or explain their research in this way before and it opened their eyes to the possibilities and the need to practice this type of approach.
Networking	●	●	●	This was a very valuable part of the ESA model. We created more time for it in each ESA.
The Value of a Mentor	●	●	●	The ESA winners from previous years proved to be very useful mentors at the academies. WP4 encouraged the participants to find a business and/or research mentor whose input they would value.
Negotiation skills	●	●	●	This was a small part of the pitching process. Participants warmed to the idea of learning to negotiate, once they started to realise the commercial potential of their research.

Table 7: Entrepreneurial Summary Academy Pedagogies and teaching strategies.

The ESA programme has effectively achieved a number of commercial related scientific and technical results the team has:

- Developed a European Award winning programme (now renamed *Design4SMEs)* promoting commercial innovations through connecting and fostering collaboration between the SME and Research Community.
- Established a pipeline of succession initially in collaboration with EFFoST.
- Trained 86 Researchers/Research Centre Managers, raising their commercial awareness and helping them to see not just that their research has commercial value, but how they might go about exploiting it.
- Established and supported 6 Mentor/Mentee relationships between SMEs and Academy Winners.
- Incorporated the added value of social learning throughout the residential and online engagement.
- Established an active networking food related research community in Europe.
- Created an online platform of training material that will support the development of an enterprising and entrepreneurial mind-set and a host of other resources that will support the development of that mind-set and the implementation of business start-up.
- Devised a unique training approach, designed for food researchers initially but which could be utilised with any other sector or group in the hands of an experienced training facilitator.
- Have been instrumental in the development of a spin-out company; a spin-in company; supported / encouraged the development of 3 other ventures and continue to mentor a number of ESA participants with their business ideas.
- Have successfully linked over 40 SMEs directly during the academies and the wider network of TRADEIT SMES across Europe with researchers, the outcome of which only time will tell.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

- Published at 2 conferences, on Taste of Science, contributed to the TRAEDIT Case Study Book titled 'The Butcher, the Baker & the Cheese Maker' and will contribute to Springer in 2017 and as an Impact Case Study in a special entrepreneurial education publication.
- The ESA programme had a remit to support women entrepreneurs and we believe that the programme has successfully supported 50 women researchers and research centre managers. The roles models provided to these women from the SME partners and within the TRADEIT team have helped to reinforce their belief that women can be scientist and entrepreneur. We have had more women ESA award winners than men.

Network Support and Collaboration

There were 4 objectives in WP5 which focused upon "Networking and Collaboration" specifically: ***1)*** establish effective collaboration across the TRADEIT Network. ***2)*** To monitor and evaluate collaboration within the network, ***3)*** capture and disseminate of the learning gained in TRADEIT collaborative interactions, ***4)*** develop a strategy to facilitate TRADEIT network sustainability beyond the lifetime of the project.

Networking and Collaboration was a horizontal activity to support the development of the TRADEIT network into a learning network. The WP5 strategy was to integrate Action Learning at ***Level 1*** (PMB) and ***Level 2*** Hub Advisors) as a priority in months 1-18 and to allow network relationships to be developed with SMEs in this time period. Action learning integration at ***Level 3*** (food producers) was a priority in months 19-36. Of the 19 partners in the TRADEIT consortium, 11 were directly involved in the work of WP5 (31.6 Person Months). 7.13% of the TRADEIT project effort was dedicated to WP5 Network Support and Collaboration. Activities were led by WP5 Leader, Professor Paul Coughlan, and Trinity College Dublin, Ireland. The work package involved a total of 5 tasks, resulting in the successful completion of 6 deliverable reports and two milestones.

Networking and Collaboration activities were focused on supporting this development to ensure that there was actual benefit and impact for the participating traditional food producing SMEs and partners, and that the Network was a progressive evolving mechanism for learning from past experience. This impact was achieved through the implementation of action learning (AL) to support collaborative strategic improvement. The case study development guide was an action learning tool for knowledge exchange and evaluation of learning. The development of case studies on food producing SMEs was the particular feature of the period from M18-M36.

Action learning is a way of thinking and working that exploits the learning that can be gained from focusing on real life problems of personal consequence to learners. Action learning occurs in an environment where engaging in experimenting, questioning and reflection (Q) is privileged over 'expert' dissemination of programmed knowledge (P). Action learners learn though taking action and reflecting with peers on the action, with the aim of improving their own practice. In the process individuals can experience transformation in personal perspectives, in social relations and in perspectives on managing.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

As action learning was the framework upon which the Networking and Collaboration activities of WP5 were to be implemented (with and between the TRADEIT Hub advisors and the TRADEIT SME Network the first action that the WP5 team took was to develop the capacity of Hubs to facilitate Action Learning activities for SMEs through provision of facilitator training Facilitator training will be provided to the TRADEIT Advisors. This was not crucial as the majority of the Hub Advisors had no previous exposure to Action Learning, nor did many of the PMB members. In line with the pro-active and active ethos of network development within the TRADEIT consortium this was addressed at the outset with integration of Action Learning and the first action learning facilitation intervention within the TRADEIT Kick Off meeting which was followed by subsequent training interventions. The training introduced the Hub Advisors (and wider team / PMB in attendance new to the area) to the concept and process of AL through an experiential engagement. This training was the first, necessary step to challenge the participants to look differently at their practice, to explore the learning opportunities latent in the interactions among the SMEs and to exploit the potential for enhancement of knowledge and technology transfer through reflection on the learning. This training was on-going throughout the project, especially through engagement in the agenda setting, guidance on exploring and exploiting learning opportunities and, as appropriate, participation in the practice of the Hub and PMB meetings. ***D5.1 Report: TRADEIT Hub Facilitator Training*** describes the development of training, description of training days, feedback and reflection.

To further enable the application of action learning as to tool to support effective collaboration across the TRADEIT network a Tools for Collaboration Resource Pack was developed to provide resources to network members on various aspects of developing and supporting collaboration through action learning. As action learning activities were to be implemented at three levels of the network: Project Management Board level (Level 1), Hub Advisors (Level 2) and SME level (Level 3) The Tools and Resource pack developed to provide guidance for all levels of activities across, within and between TRADEIT Network members. Content included information sheets, worksheets, guidelines, exercises, reflective evaluation sheets, key questions and checklists on various aspects of using action learning to support learning within collaborative efforts all of which is described in ***D5.2 Report: Tools for Network Based Collaboration***.

With the tools provided the team up-skilled in Action Learning facilitation and the support infrastructure of the WP5 team in place the WP5 Networking and Collaboration framework was fully established. TRADEIT Action Learning interventions that followed for the duration of the project were designed to supporting collaborative strategic improvement opportunities for change and innovation. This was centred upon enabling participants to investigate and work collaboratively at resolving strategic improvement problems and to enhance the impact and outcomes of the learning opportunities presented within the various TRADEIT events and activities.

In the case of SMEs (Level 1), improvements were within their operations and capacity to work with and learn from others (SMEs & experts), in the case of the Hub Advisors (Level 2) it was to better enable the SMEs to do so, whilst in parallel increasing knowledge on the firm and solutions available (via experts or other firms “peers”) which collectively created a stronger relationship between the

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration GA 613776.

SME(s) and Hub Advisors (working towards human and social capital developments all of which can lead to solution sourcing and improvements. In the case of the PMB (Level 3) the improvements were within the TRADEIT consortium towards further improvement of project roll out and Network Development.

In these interventions TRADEIT participants were engaging with systems alpha (what is the reality of my situation?), beta (what do I need to know more about? Whom can I meet and engage with? What do I need to test out? and, gamma (what am I learning about how I act?) in this way participants were investigating and working collaboratively at resolving the strategic improvement problems whilst also attending also to their own learning.

In TRADEIT, systems alpha, beta and gamma were enacted at the levels of SMEs within the hubs, and the network as a whole. System alpha focused on the identification and analysis of real organizational problems or opportunities facing the SMEs. One output for TRADEIT was how each SME, in its own local and market context, learnt how to improve its collaboration, innovation, entrepreneurship, knowledge and technology transfer. System beta involved the rigorous exploration of the resolution of the problems through cycles of action and reflection in the hub action learning sets. Essentially this exploration involved participants telling the story of action taken through WP2 and WP3 and by being exposed to the process of the critical friend reflecting on that story. A parallel system beta process was the WP5 team's engagement across work packages and hubs and the PMB. The role of system gamma in TRADEIT was to begin this process of capturing the individual learning of the SME participants by developing case studies at the Irish hub and developing an evaluation framework for use across the project and in the next phase of the project.

To both capture and enable the transfer of the experience and learning of the TRADEIT Hub Advisors (facilitators and enablers of knowledge and technology transfer) within the frame of the TRADEIT Network, (a network of SMEs, knowledge and technology providers, food associations and support agencies) a ***Guideline for SME support professionals on effective engagement, collaboration and support of Traditional Food Producing SME*** was developed.

The concept of a guideline in the context of a learning network was informed by *Collaborative Strategic Improvement through Network Action Learning: The Path to Sustainability* (P. Coughlan & D. Coghlan, Edward Elgar, Cheltenham, 2011). This guideline developed provides a framework by which SMEs support professionals can identify and address particular needs and problems within food producers SMEs that could potentially be solved by the transfer of knowledge and /or technology which can be considered learning opportunities and interventions.

The actions proposed "Guideline for Traditional Food Producing SME support" is a series of interventions which provide the time and scope for development of the collaboration and identification of potentially unforeseen improvement opportunities that may arise within a firm or network. In support of the interventions, the scoping and design of events, activities and tools utilised in the TRADEIT Network to enable knowledge and technology transfer on best practice,

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

emerging innovations, new technologies and evaluation of learning are presented. This is detailed in Deliverable **5.4** ***Guideline for SME support professionals on effective engagement, collaboration and support of Traditional Food Producing SME.***

The application of Action Learning was extensive and effective, over the duration of the project a total of 3 x Level 1, 8 x Level 2 and >120 x Level 3 interventions took place, far exceeding project targets. This embracement of the process evidences its effectiveness and its role in supporting the on-going development of the TRADEIT network into a learning network TRADEIT. The full scopes of activities are detailed in Deliverables 5.3 and 5.5 both a review on the effectiveness of the Network Collaboration and Innovation Supports delivered via WP5. These reports detail the conceptual underpinnings of collaboration and support, action learning interventions supporting collaborative strategic improvement opportunities for change and innovation inclusive of agenda development and facilitation of reflective pauses/action learning sessions at project-level meetings, and through engagement with hub advisors on a regular basis in case development and active engagement with SMEs.

Whilst the title of the WP is Networking and Collaboration, a key role and contribution of the WP5 activities has been in the facilitation and improvement of learning. Towards this goal the WP5 team have delivered significant benefit and impact within the TRADEIT project in the area of evaluation of learning and impact assessment. The WP3 & WP5 teams collaborated closely on the development of assessment methodology for the Knowledge Transfer activities which was effective and productive. What was particularly innovative and provided key qualitative datasets and insights on the impact and effectiveness of the TRADEIT support program was the Traditional Food Producer case studies. Development of these cases was led by the WP5 team and supported by the associated SME case study development guide, in person and online support infrastructure for the Hub Advisors who worked with SMEs from the TRADEIT network to develop the suite of TRADEIT Case Studies.

There are two fundamental types of case study: research cases and teaching cases. There are commonalities between the two: both related to practice and both presented a history of practice. The traditional use of case studies to report on research studies or to engage learners generally entails writing or discussion rather than action. However, for action learners, the distinction between taking action and talking about taking action is an important one. TRADEIT provided an opportunity to develop case studies as an action learning intervention focused on the learning and development achieved when owner/managers engaged in cycles of reflecting and acting on their own real-life problems in real time. A case study development guide was produced to provide guidance on the writing and use of case studies of practice emerging from the TRADEIT project. The note detailed case planning, data gathering, case writing and case use.

The resulting cases, captured in the book, *The Butcher, the Baker and the Cheesemaker,* are rich descriptions of the practice and context within which each firm engaged in that practice. Each tells a story. The unit of analysis is the firm and the voice is that of a key person in the firm, such as the

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

owner/manager. All cases are different. Each one tells the particular story of the food producer and its particular engagement with TRADEIT. The cases are built on data, some of which came from the public domain. Critically, however, the heart of the cases is based upon the story of the firm as told by a key person in the firm. These stories were developed through one or more interviews. The focus is both questioning of and reflective on the story in the case. The objective is to enable an open discussion of the story and its meaning, rather than a definitive summary to be accepted unquestioningly.

Whilst provision of supports to enable the TRADEIT network to evolve from a strategic to learning network, the WP5 team was also instrumental in the development for the ***Strategic Plan for Network Sustainability*** . This took form of close collaboration with the TRADEIT coordinator to frame and facilitate discussions and explorations with the PMB (level 1) on what form a sustainable TRADEIT network may take. Discussions and explorations from M21 – 32 of the project progressed from Level 1 to Level 2 with extensive engagement with the Hub Advisors on their perspective on what form a sustainable TRADEIT network may take which was even more pertinent as the Hub Advisors and Hubs are the foci of implementation of the Network.

In these discussions the project team reflected upon TRADEIT as an open innovation initiative and a learning network which has facilitated innovation and entrepreneurship among traditional food producers through action learning. This was followed by interventions which resulted in action-learning based insights into the deployment of cognitive, structural and procedural learning mechanisms provided a guide to the establishment of a post-TRADEIT model which may function into the future. The guide was informed by the operational and structural decisions and experiences which emerged from TRADEIT. The implementation guidelines presented have two objectives: to outline the learning mechanisms necessary to establish a learning network post project; and, to facilitate implementation of sustainability plan. The strategic plan and framework for the sustainability (or durability) of the TRADEIT Network beyond completion of the project is presented in **Deliverable 5.6 Strategic *Plan for Network Sustainability.***

In summary all objectives of WP5 have been achieved in full and exceeded in many cases. This has been captured in the development of a suite of tools, resources and best practices that delivered impact during the project and have the potential to deliver impact post project. These tools, resources and models of best practice for the exchange of knowledge technologies and facilitation of collaboration included action learning collaboration tools (Deliverables 5.1 & 5.2), Tech Transfer Managers Guide to TFP SME support (Deliverable 5.4), and a Strategic Plan for Network Sustainability (Deliverable 5.6) This final deliverable was the outcome of extensive facilitated discussion among the TRADEIT project management board, work package leaders, and hub advisors before, during and after meetings in Dublin, Ireland and in Braganca, Portugal during Spring, 2016.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Strategic Research and Innovation Agenda.

The Strategic Research and Innovation Agenda (Work package 6) consisted of a sequential series of tasks that would assess the landscape, gather data, consult widely and finally result in a definitive Strategic Research and Innovation Agenda (SRIA) for the traditional food producers across Europe. Since these are almost universally SMEs, the agenda would necessarily be SME focussed and while concentrating on the three food sectors of TRADEIT (dairy, meat and bakery), industries from outside these sectors were not excluded from the exercise. Indeed, an analysis of the industry structure became a major output of the work package. This in turn dictated how many of the later tasks of the work package would be conducted. The work package involved a total of 4 tasks, resulting in the successful completion of 5 deliverable reports and 2 milestones.

There are 4 objectives in WP6 overall which specifically: ***1)*** Survey Current Traditional Food Research and Innovation landscape, **2)** Survey Stakeholder perspective on Research and Innovation for Traditional Food, ***3)*** Develop Regional Research and Innovation Frameworks, ***4)*** Develop a Strategic Research and Innovation Agenda

All 19 partners in the TRADEIT consortium 17 were directly involved in the work of WP5 (32.25 Person Months). 7.29% of the TRADEIT project effort was dedicated to WP6 Strategic Research and Innovation Agenda Activities were led by WP5 Leader, Professor Brian McKenna, EFFoST, Netherlands.

An important objective of the project was to identify future research that could benefit manufacturers of traditional food products. To initiate this search, the many existing research agendas, both at national and European level, were assessed as part of Task 6.1 Survey of Current Food Research and Innovation Landscape In general, these concentrated on the needs of large and medium enterprises and had little emphasis on the needs of either SMEs or of the traditional food sector. In fact, only the difficulty in obtaining small scale processing equipment and the need for rapid online test procedures as common topics from this and later tasks in the work package. However, there were some generic topics in the general areas of health, safety, sustainable and ethical production, food processing and packaging, consumer awareness and innovation in the food chain that could be considered as applying to any sector or size of food manufacturer.

To determine the current research and innovation needs and barriers of the traditional food manufacturers, a number of different approaches were used. First, a series of questions specific to research and innovation were added to the *Needs and Barriers Survey* undertaken under work package 2. Workshops as part of task 6.2 Develop and Host Stakeholder Workshops were held at various locations in Europe, attended by the work package 6 team, at which traditional food manufacturers were questioned on their perceived research needs and barriers to innovation. These were either organised as stand-alone events or as add-on sections to events at which SMEs were available.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

This led to the first surprising outcome of the work package, namely, the incorrect expectation of the team that food science and technology needs would dominate the topics just as they did in other research agendas. It emerged that the main barriers to innovation were: -

- Lack of time for adequate innovation;
- Difficulties of access to finance for innovation;
- The unsuitable size/cost of processing equipment for delivering product innovations;
- Problems in creating adequate distribution networks;
- The problem of innovation awareness.

It quickly became apparent that the needs were as much (or more) in the human, business and organisational sciences as in the technological and physical sciences. Consequently, there would be requirements for future funding calls to be oriented towards these five themes as well as to the areas of innovation awareness, management skills, safety, sustainability and an understanding of consumer needs and perceptions.

The next step in the development of the strategic research and innovation agenda was to Develop Regional Research and Innovation Framework (Task 6.3). A series of workshops and surveys were conducted using the regional hub structure of TRADEIT showed that the main barriers to innovation differed significantly between the regions. However, the five major topics of task 6.2 remained constant across the regions. Also, within the three sectors examined (dairy, meat, bakery), there was good consensus on the generic research needs while each sector identified a set of sector specific topics as detailed in Table 8.

Bakery	Dairy	Meat
Ingredient Sourcing Allergen Management Product Diversification Fermented Dough Gluten Free Products.	Rapid Onsite Testing Access to Shared Processing Facilities New Co-operative Models Functional Ingredients Raw Milk Cheese Production	Access to Processing Facilities Inventory Management Small Scale Process Related Information New Product Development

Table 8: Sector Specific Research Needs (sample)

However, it was clear that there were significant needs on how to: - Manage growth; Develop New skills; Control raw materials costs; Adopt new technologies; Internationalize marketing & distribution; Increase shelf-life; Lower energy; Use novel packaging; Access new technologies and new products. There were also problems arising from a lack of technical personnel and a lack of access to external knowledge.

A series of meetings were held with stakeholder organisations across the food chain to obtain their input. All were surprised at the emphasis that was emerging on barriers to innovation being mostly in the business and management skills area rather that in the expected food science and technological barriers.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

To determine why classical food science type problems were secondary to business and management topics in the data collection, the team looked at the available statistics from EUROSTAT and FoodDrinkEurope on the industry structure. It was already apparent from other work packages and the various workshops that the traditional food manufacturers were predominantly micro SMEs. The structure of traditional food manufacturers and the outcome of the initial data gathering suggested that most of these companies were in the micro-SME category (1 to 9 employees with an average of <3 employees). Obviously with less than 3 employees, these companies were not unlikely to have in-company scientific expertise nor would the day-to-day multitasking manufacturing requirements allow the time to consider innovation. An even more disturbing statistic is that across all food manufacturing sectors, such micro SMEs constitute 78.8% of the total. This implies that not only in traditional foods but right across the food sector, the so-called 'soft skills' deficiencies are likely to inhibit innovation and suggests an urgent need for new innovation support systems for these companies.

In moving from a regional to draft and final traditional foods SRIAs (Task 6.4 Strategic Research and Innovation Agenda for Traditional Food (SRIA)) it was not possible to adopt the conventional method of developing SRIAs as used by other organisations, namely, brainstorming sessions involving scientists from academia and industry, simply because the industry scientists might not exist. Consequently, a direct approach to the companies was adopted, using the 9 Hub Advisors as facilitators. Therefore, a series of face-to-face meetings and questionnaires were arranged in each regional Hub. This also had the advantage of ensuring that the local language of the region was used at all times.

While this exercise re-confirmed the previous task outcomes, it also identified 100+ technological research requirements that were necessary for increased innovation. These were classified into nine categories outlined in Table 9:

Processing; Sustainability; Rapid Testing;	Packaging; Product Characteristics; Allergen Management;	Health and Safety Issues; Labelling and Related Issues; Production Formulation.

Table 9: Classification of SME research and innovation requirements: 100+ technological research requirements required for increased innovation. These were classified into nine categories outlined in Table 9:

A draft SRIA was prepared and, following a web-based open consultation, a finalised version was produced. This formed the basis of D6.5 Strategic Research and Innovation Agenda Reportand heralded the formal end of WP6 as defined in the DoW. However, consideration was given during the remaining 8 months of TRADEIT to continue dissemination activities for the SRIA and to devoting some time to extracting the main impediments to innovation from both the TRADEIT SRIA and that of its sister project, TRAFOON. These were presented at the joint closing conference of the two

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

projects titled; Open to Innovation: Networks for the sustainability of Traditional Food Sector in Europe**.** The potential impact of the WP6 outcomes could be significant, especially in the areas of research funding calls and innovation support structures.

Research funding calls. It is apparent that if this sector is to innovate at a greater rate than at present, future funding calls will have to be expended in scope to cover the 'soft skills' deficiencies identified in the work package in addition to the more 'hard science' based current calls.

Innovation support structures. New innovation support structures will be required to guide these micro SMEs through the innovation process. While it is unlikely that this will evolve as a uniform Europe-wide structure but will be better evolving as regional or national programmes. Both technology transfer and development guidance need to be provided in a similar manner to that provided by extension services to farmers.

While TRADEIT concentrated on traditional food manufacturers in three sectors, the results were not unique to traditional foods or to any sector but were more micro SME specific. Since these constitute approximately 79% of all food companies producing 50% of total European turnover, it is clear that similar barriers to innovation exist across almost the entire food chain. Removal of these barriers would impact significantly on society through increasing food supply, consumer satisfaction and the food economy.

Dissemination

As a coordination and support action developing a network that was focused upon the transfer and exchange of knowledge and expertise effective dissemination and communication was a key strategic pillar within the project. There were a total of 4 objectives for WP7 specifically: **1)** develop the project website, ***2)*** generate and distribute of promotional and informational material, ***3)*** develop a dissemination and communication plan and ***4)*** pilot an SME Food Innovation e- Journal.

Of the 19 partners in the TRADEIT consortium, were directly involved in the work of W7 (38.5 Person Months), with 8.7% of the TRADEIT project effort was dedicated to WP5 Dissemination. Activities were led by WP7 Leader, Dr. Jeroen Knol, EFFoST, Netherlands.

From the outset TRADEIT was committed to and focused upon the development of a strong brand and visual identify for the network that would ensure that it was recognisable within and across the regions. In achieving this *Task 7.1 Dissemination and communication strategy*, developed a working document that provided the overarching framework and approach for the delivery of the dissemination activities outlined in the project's Description of Work which was evolved over the course of the project resulting in a total of 3 deliverables (D7.2, D7.5 and D7.9). These documents describe the overarching strategy; the means and the channels selected by TRADEIT to ensure that project activities, supports and outcomes were communicated in the most effective way possible to the broad range of TRADEIT stakeholders. The latest version was submitted in Month 25 (Del. 7.9),

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

each describes project stakeholders, roles and responsibilities, communication (regional, national & EU) and dissemination levels ***1)*** general scientific community, ***2)*** Traditional Agri-food SMEs and ***3)*** relevant market stakeholders of the food area, including consumers were detailed . Dissemination and communication activities were specifically tailored to the audience in question and addressed distinctively according to their different interests: groups 1 & 2 were to be informed mainly of the scientific, technological and operational impacts of the project, while the third group will have this information supported by implementation strategies. Public events such as conferences and meetings were attended by the consortium members to promote and disseminate project results events. The project engaged at a local, regional, national and EU level in dissemination activities.

The project website played a key role in the TRADEIT dissemination activities; this was developed by NEWS under Task 7.2 Project Website. The Home page was carefully designed to capture each of the key elements and activities of the project. The imagery on the home page illustrates traditional food products or production. The fact that the project supports SMEs producing Traditional Meat, Dairy and Bakery products is clearly communicated e.g. photo captions "supporting SMEs producing Traditional Meat/Bakery/Dairy products". The TRADEIT logo also has the caption "Support for the Traditional Food Sector".

The home page details all areas of project activity clearly, with dedicated call to action points: Technology Transfer (WP2), Knowledge Transfer (WP3), Entrepreneurship (WP4), Network Support and Collaboration (WP5), Strategic Research and Innovation Agenda (WP6). A map illustrating the TRADEIT hubs is on the home page, leading to key contact points and opportunities to join the TRADEIT Network. Project news and events as well as external news and events are also promoted on the home page.

The public website is a platform for the dissemination of key project findings and results. All of the project offerings are clearly communicated in the appropriate manner. The number of unique visitors since the launch of the website (December 2013) up until April 2015 was 3,383. In April 2015, the way the metrics are collected was changed. Instead of using the Newsweaver Analytics we have been using Google Analytics. According to Google Analytics **12,347 unique users** visited the TRADEIT website since April 2015. These users have completed **17,256 sessions** averaging at **2.5 minutes** per session. The average number of pages they viewed once on the site was 3. The top 10 countries from which the site was accessed were Ireland, United Kingdom, United States, Italy, Spain, Germany, Poland, Portugal, Finland, and the Netherlands.

Over 150 workshops, training events and brokerage events were held by TRADEIT to progress the work of WP2, 3, 4, 6 and 7. A wide range and variety of project dissemination materials were developed by each of the TRADEIT Hubs, EFFoST and ITT with inputs from NEWS as part of Task 7.3: Creation, production and distribution of promotional and advertising materials which were distributed through regional sub-networks and at an EU level as appropriate.

The TRADEIT Newsletter was published approximately every three months in each of the project languages (English, Portuguese, Spanish, Polish, Italian and German). It was distributed electronically to the entire TRADEIT distribution lists with an estimated reach of 150,000. From Issue 1 to Issue 10

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

there is a 21-fold increase in the number of e-mails delivered directly by the Newsweaver system to the TRADEIT Newsletter subscribers going from 114 at Issue 1 to 13059 by issue 10. The nnewsletters to promote and increase engagement via of EFFoST and TRADEIT networks reached circa 8,000 unique email addresses.

A wide range of synergies were built with other EU projects and TRADEIT has had interactions with a range of projects including; Trafoon, Hightech Europe, NetGrow, CommNet, Healthbread, Connect4Action, Startec, Sinergia, Bake4Fun, Healthy Minor Cereals, Noshan, APROS, CYCLE, FunkiFiber, Susmilk, FreshFilm, EnerMilk, FreshPack, CyberBar and the ISEKI Food Association. A list of >500 EU funded projects was provided by the project officer at the outset of the project, all were contacted, with varying levels of success. Many of the 385 knowledge providers were sourced from this list, in addition a short list of 100 projects has been developed with whom Taste of Science has and will continue to outreach to source technologies and knowledge as content for Taste of Science. Networking and collaboration has been the key platform of the TRADEIT project, this will contribute to the strategic development of the TRADEIT network beyond the duration of the TRADEIT project grant agreement (post October 31st 2016), inclusive of identification of opportunities for expansion of dissemination channels. What has been particularly successful in the TRADEIT project is the close collaboration with TRAFOON – which was funded under the same call topic to support different sectors of the Traditional Food Sector. A wide range of joint dissemination activities were undertaken with TRAFOON in addition to close collaboration on the development of the Strategic Research and Innovation Agenda (SRIA) for traditional food industries.

Small and medium sized food businesses can find scientific knowledge difficult to understand and in turn difficult to implement. As a result, larger food companies are usually first to adopt and implement innovations and can as a consequence be more competitive. Task 7.4 Pilot production of new SME oriented Food Processing Innovation journal was designed to address this challenge. This activity, led by EFFoST developed SME centred food innovation e-journal. Branded '*Taste of Science'*, it is hosted on a dedicated platform www.tasteofscience.com and disseminated via the TRADEIT and EFFoST networks. The TRADEIT and EU support of the pilot is highly visible providing significant reach and impact for the project.

Taste of Science selects promising research papers from the scientific literature and re-writes them in a more journalistic format so that they can be more readily assimilated by SMEs who may have little or no formal in-house scientific expertise. Content specifically relates to innovations and developments relevant to the operations of small to medium scale food producing enterprises and Traditional Food Production. Articles disseminating EU funded project outputs, activities and SME case studies are also included. However, the *Taste of Science* content model is not that of a traditional journal or magazine, content is updated as the articles become available to encourage repeat engagement on a weekly basis. The e-journal has continued to evolve rapidly (even beyond the targets set in the TRADEIT DoW) and editions are currently being planned in a range of languages to facilitate SME use of the content. Currently, Taste of Science has 7,796 subscribers to the newsletter. Since the Taste of Science website became active in December 2014, 12,570 users have

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

accessed the site. These users have completed 16,382 sessions averaging at 2:01 minutes per session.

Social media platforms including, Facebook, Twitter & LinkedIn are key promotion and dissemination channels for *Taste of Science*. TRADEIT has pages on all of the main social media platforms and these have been deemed to be effective. The first tweet from the @TradeitFoodNet twitter handle was sent out in May 2014. Since then an additional 1669 tweets have been sent and over 978 followers accumulated. @TradeitFoodNet is strategically following around 1480 relevant tweeters and liking & retweeting relevant content on a daily basis. The first tweet from the @TasteOfScience twitter handle was sent out in January 2016. Since then an additional 863 tweets have been sent and over 1280 followers accumulated. @TasteOfScience is strategically following nearly 900 relevant tweeters and liking & re-tweeting relevant content on a daily basis. A full review of the activities and effectiveness of the dissemination and communication activities of TRADEIT was carried out as in delivery of Task 7.5 Report outreach of dissemination, training and communication activities, all tasks were completed as outlined in the DoW, this is detailed in *D7.5 Report on outreach of dissemination, training and communication activities*, in addition to all dissemination activities reported on the participant portal with > 500 entries.

IMPACT

The successful piloting of the Regional TRADEIT Hubs-Advisor-Sub-Network model has validated the proposed approach for providing SMEs with access to innovation and R&D expertise. This **decentralised SME support infrastructure, facilitated by each Hub Advisor** connected the diverse stakeholders in Traditional Agri-Food business (SMEs, clusters, associations, National Technology Platforms, Food Researchers, Food safety Networks, Business and Entrepreneurial Networks). This decentralised model has demonstrated strong **socially inclusion credentials**, Hubs and Advisors have facilitated **regional engagements (in mountainous, rural and costal locations), in the local language removing the time and language barriers to event participation** frequently encountered by SMEs.

Whilst a decentralised and regional approach was adopted, Pan-European impact and implementation is clearly evidenced in TRADEIT's effectiveness in bringing together a wide range of Traditional Agri-Food stakeholders into a single **European-wide network** that generated a wide variety of cross border collaborations. This network facilitated knowledge exchange and technology transfer across the regions, and facilitated by the extensive movement of SMEs and researchers between the 9 Hubs which collectively has delivered Pan-European socio-economic impact.

Technology Transfer

Collectively the regional sub-networks developed have created ***a new European Network*** of Traditional and Agri-Food stakeholders. At the outset of the project the network was comprised of 44 organisations, as of October 2016, the network had 385 SME organisations, 516 knowledge providers and a reach of 14,000 SMEs and 100, 000 researchers. Each Hub Advisor has developed **relationships with regional stakeholders,** which will persist and grow post project contributing further to each of the 9 regional SMEs support ecosystems.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Through this Hubs-Advisor-Sub-Network model, TRADEIT has ***capitalised on previous investment*** in European infrastructures (to host Hubs) and research activities (to source knowledge and technologies) and effectively facilitated the transfer of technologies, innovation and knowledge, to and between SMEs, researchers and technology developers across Europe. **This flow of innovations and know how has been achieved via the** knowledge and technology exchange activities, brokerage events, missions and the SBTTR program which facilitated a diverse array of technology showcasing **stakeholder engagement** and **transfer opportunities.** Thematic areas have included food safety, meat processing, bakery and dairy technologies, allergen management, labelling, packaging technologies, sustainable food processing and plant design.

The sub-sector (Dairy, Meat & Bakery) technologies and best practices have led to improvements in **capacity, efficiency, compliance, and product quality and product innovation** enabling traditional food producing SMEs to expand into previously **untapped European markets**, **increasing market share and revenues**.

With the diversity of firms involved and the wide-ranging knowledge transfer activities that have taken place the suite of impacts achieved in the short to medium term are as discussed wide ranging including increased improvements in capacity, productivity, compliance, sustainable processing, improved consumer perception, competitiveness, job creation, increased revenues thereby increasing the competitiveness and inter-regional advantage of participating SMEs. Technology transfer is essentially an entrepreneurial process and the degree to which it happens can be a function of how embedded entrepreneurial thinking is in the receiving organisations processes. The ability of an organisation or an individual to exploit knowledge coming from outside the organisation is seen as a critical part of the open innovation process. The ability to recognise, evaluate and utilise outside knowledge for commercial ends is referred to as the absorptive capacity of the firm. The ability of a firm to utilise and enhance knowledge provided to them, whether formally or informally, is believed to be based on their current level of innovation. While many of the firms that we have engaged with might not have described themselves as innovators at the outset of their engagement with TRADEIT now recognise that they are capable of innovation and of adopting technology. During this process their understanding of these concepts has been transformed as has their ability to engage with technology.

The following is a sample of SMEs feedback on the TRADEIT enabled impacts which are further detailed in Tables 10 & 11.

- Access to research, increasing uptake of emerging and available technologies and have contributed to process upgrading
- Strategic partnering of SMEs, enterprise and research providers.
- Over all 186 SMEs identified and/or *adopted new technology*
- 83 SMEs engaged in in-house innovation
- 36 partners have *outsourced existing technology* support by open innovation practices
- Significant networking and partnership development. SMEs report having developed new contacts locally (44), nationally (136) and Europe wide (112). Some of these have become

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

strategic collaborations (28) evidenced in the number of level 4 (101) and level 5 (50) SBTTR outputs.

- Stimulated product development and innovation, with development of new products (64), the identification of new product opportunities (106), new home (44) and overseas markets (20) for SMEs.
- Technology adoptions have improved shelf life (73), packaging (42) and product quality (74)
- 18 firms report having improved management skills and 6 have improved their management structure
- New IT skills have been adopted (14)
- Customer service has been increased (27) and staff training has been undertaken or provided (15).
- There have been improvements in supply chains (9), production skills (14) and in production facility layouts (11).
- 11 businesses have improved waste and energy management.
- 72 partners report applying for research/innovation funding to support improvements and implementation of innovative practice and business

The TRADEIT Hubs have delivered regional impacts, SMEs have overcome a variety of technological, environmental and regulatory hurdles resulting in **process optimisation**, improvements in **food safety**, **quality** and process **sustainability** in the traditional Dairy, Meat and Bakery sub-sectors. Models of best practice for the support of SMEs, facilitation of knowledge and technology transfer, collaboration, innovation, SME focused communication have been developed and validated.

	No. of impact statements overall and by sub-sector						
Area of Impact	**Overall**	**Bakery**	**Dairy**	**Meat**	**Environ-mental**	**Packaging**	**Food Safety**
Partnerships & Networking	537	136	19	175	23	12	29
Product Development and Innovation	334	44	196	47	4	2	4
Food Safety: labelling & quality	235	13	180	11	1	0	2
Technology & Equipment	228	29	125	38	1	1	2
Business Structure, Management and Efficiency	128	50	3	34	0	4	
Marketing	121	27	9	65	1	2	1
Market Development	93	11	1	61	0	2	6
Funding	72	2	50	3	0	0	2

Table 10: SME reported Impact statements: detailed in total and per sub-sector / topic.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

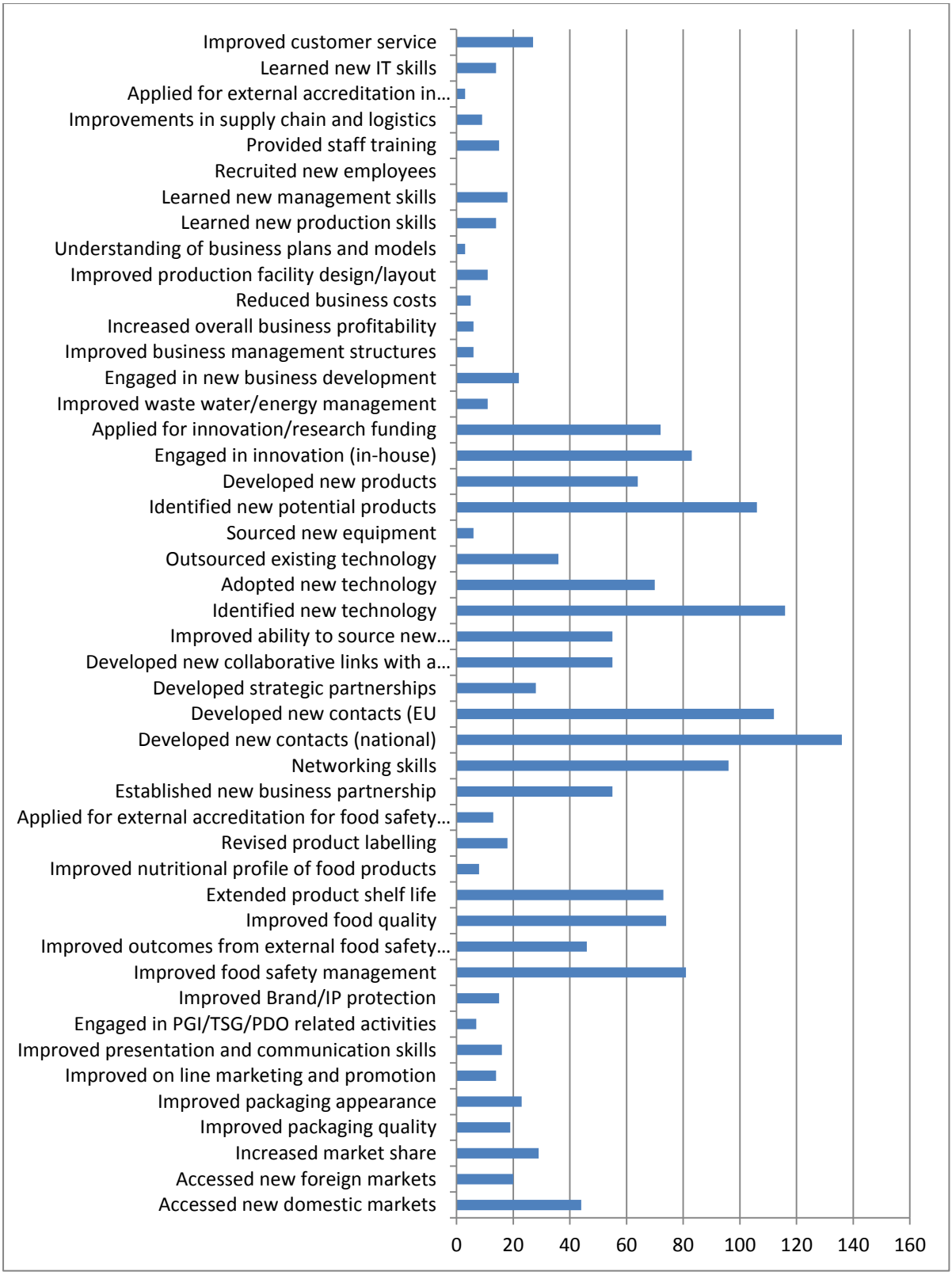


Table 11: Impact Assessment statements completed by SMEs who participated in TRADEIT events.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

Knowledge Transfer

Assessment of the effectiveness of the knowledge transfer activities and impact on skills of the target traditional food producers and on other network participants was led by Dr. Catherine Halbert [HRES]. This took the form of assessments by Hub Advisors of the success and challenges of knowledge transfer activities per Hub; results of surveys of participants on the day of training and >3 months after each training event; relevant extracts from the TRADEIT case studies; blog capture; video of SME food producer discussing impact of TRADEIT and workshops; and presentations by SMEs and Hub Advisors at the TRADEIT and Trafoon Joint Conference in Brussels on the 19th and 20th October 2016. In relation to surveys of participants, the food producers attending each TRADEIT event were asked to complete a feedback sheet on the day of training. These captured 'Reaction and Learning', i.e. the first two levels on the Kirkpatrick's Four-Level Training Evaluation Model. In order to assess Kirkpatrick Levels 3 and 4 (i.e. Behaviour and Results), a TRADEIT Survey instrument was developed using Google. This was distributed to all those who participated in the TRADEIT training events across the Hubs. Considerable collaborative effort was used in order to develop effective questioning and a simple scoring method. The questions were aimed at assessing the real impact of the training activities on the SMEs at more than 3 months after the training. Variable levels of responses were achieved, but overall the surveys provided a very useful way to assess the longer term impact of the training.

The majority of those surveyed more than 12 weeks after the attendance at several TRADEIT workshops *strongly agreed* or *agreed* on the following statements: Our food production systems are more efficient; We have improved compliance with regulations; We recruited additional staff; We accessed new markets; We engaged in innovation; We developed new food products for our customers; Our customer satisfaction has improved; We are involved in new collaborations at regional level; We are more competitive at regional level; Our product sales have increased; Our revenues have increased; Our profit margins have increased; and Healthy sustainable food products are a priority for our business. Surveys were also conducted for each individual module, with similar very positive statements received.

Additional general comments provided by the SME food producers about the overall training in terms of up-skilling included: "We found the course to be of great assistance. We are now reaching our customers on a daily basis through our platform on Facebook. We began to post photos of our products online and we were quickly rewarded with increased sales and a higher profile. This was an excellent outcome after just a few hours tuition. The time spent in the workshop was time well spent and the results are on-going". "My daughter attended the Entrepreneurial Summer Academy, and I attended the Bakery Technology Brokerage Event Germany, and 3 workshops (Competitiveness 1 and 2; and Environmental Management). We benefitted from the networking opportunities, meeting other traditional food producers to share ideas and realising we have similar problems. TRADEIT helped us to source new equipment (ovens), consider new products and packaging, develop a new business plan, and consider better environmental management". "TRADEIT has arranged many excellent workshops that I have attended. Many of these workshops supply information and advice that I would find very difficult to find as a small producer. The range of

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

workshops and speakers are informative and extremely useful to the development of my business". "TRADEIT workshops have been a great source of knowledge to me, very enlightening, well run and delivered in an easy to understand way in a very suitable venue. The speakers were well chosen from which I took a lot of info and tips away with me which is not easily got". "It is very important to step back from your business to go forward. Working in my business on a daily basis hampers the development of my business in many ways as I do not have the opportunity to network and view techniques and technology available to my industry that would allow me to work in a more efficient manner. I believe it would be a great benefit for me to see processes that I do not currently embrace. I love bread and would thoroughly enjoy seeing different techniques that I can use in my business to help grow the business thus creating employment".

The TRADEIT Case Study Book 'The Butcher, the Baker and the Cheesemaker' comprises 21 Case Studies, each an individual perspective of the people, the places and produce in the TRADEIT network. The book illustrates very well the food producers' views of the knowledge transfer and technology transfer within the project, as well as many other benefits of being part of the TRADEIT network. One company owner in the TRADEIT network, Mr Declan Bracken of Brackens Bakery, Cork (Ireland), featured in a specially commissioned TRADEIT video, where he explained the value of the TRADEIT project to his business, in particular the workshop on Environmental Management which resulted in Declan buying new and more energy efficient ovens and lighting for his bakery. This video has been shown at the final TRADEIT Conference where Declan also spoke in person about the impact of the TRADEIT project. The Knowledge Transfer activities of the TRADEIT project were presented at the Final joint TRADEIT and Trafoon Conference in Brussels on the 20th October 2016 'Open to Innovation'. The session was co-presented by the WP3 Leader Catherine Halbert, two Hub Advisors Matteo di Rosa (Hub Italy-APRE) and Anna Maria Saarela (Hub Finland – Savonia), and two of the SME food producers, namely Declan Bracken (Brackens Bakery, Ireland) and Giuseppe Riti (Italian Cheesemaker). The presentations were very well received and the TRADEIT Twitter account captured the atmosphere of the day.

Take-Home Messages from TRADEIT on Knowledge Transfer include: 1) Traditional food producer SMEs are not a homogenous group. There are micro, as well as small and medium enterprises each with different levels of knowledge, capacity, infrastructure and needs; 2). Individuals, sectors, and countries differ; understanding the person, sector and culture are important; 3) Knowledge transfer requires listening, good planning, expertise in communication and learning, and subject matter experts; 4) Local advisors and facilitators are key to understanding local and regional needs, to provide access to food companies, and to facilitate knowledge transfer 'on the ground'; 5) Carefully planned and choreographed activities are needed - but flexibility and adaptability needed during delivery. Training environment is very important; think beyond traditional classroom settings; 6) Creative and agile approaches are needed in order to attract food producers to training activities. Language and communication tools need careful consideration; 7) 'Soft' skills are as important as technical ones; 8) Peer-to-peer learning yields wonderful results and variation in training delivery from experts is important; 9) Follow-up and support after training is essential, as training raises issues for which the SMEs need further help; and 10) Impact timeframes vary; some SMEs can

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

quickly adapt and implement changes while others may not have the capital to invest in changes they wish to make following training.

It is anticipated that future knowledge transfer events could continue locally, regionally, nationally or at European level using the legacy of resources available on the TRADEIT website and through actions of interested consortium partners. There are several anticipated end-users of the resources, most notably traditional and SME food producers from any sector, Hub Advisors who work directly with food companies in their ongoing day to day work, trainers, consultants, and food associations and agencies. The online learning units are applicable across any food sector (not only the bakery, meat and dairy food sectors targeted in TRADEIT), while the language-specific materials will be particularly useful at local, regional and national levels where they were adapted to suit local settings and specific sectors.

Overall, the knowledge transfer actions in TRADEIT were remarkably successful and were an integral part of the network development process. Most of the surveyed companies reported multiple improvements in their businesses, particularly that their sales, revenues, and profit margins had increased. There was strong feedback that healthy sustainable food products were a priority for the traditional food producers. Knowledge transfer was not one-way from trainers to companies; it was a fully interactive and engaged process with knowledge and insights transferred between the companies, Hub Advisors, trainers, academics, researchers, students, technology providers, and the consortium partners and wider network. There is much to gain from the rich feedback provided by the participating companies, not only where there were positive comments and ideas, but also constructive criticism or instances where the training did not have the desired impact. A comprehensive repository will be available long after the project ends, in the form of the localised training content, on-line Modules, and the TRADEIT network itself where well-established relationships will continue to blossom beyond the project.

Entrepreneurship

TRADEIT has established model of best practice for delivery of entrepreneurial training and commercialisation skills to food researcher and research centres. A framework, Design4SMEs, has emerged from 3 years of developmental activities in which the TRADEIT Entrepreneurial Summer Academy has evolved into an award-winning training program which promotes RDI commercialisation through connecting and **fostering collaboration between the SME and Research Community**. These activities have positively impacted on **entrepreneurship and innovation skills** gaps. This training has resulted in **capacity building** within research centres and has generated **motivated entrepreneurs** which collectively positively impacts on the competitiveness of regional economies.

Over the course of the 3 academies 86 food researchers' participated, involvement raised their **commercial awareness** and enabled the researchers to **identify the commercial value** of their research and how to **progress towards exploitation**. In line with the remit of TRADIET to support female entrepreneurs, the ESA has successfully supported **50 female researchers** and research

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

centre managers. The role models provided to these women from the SME partners and within the TRADEIT team have helped to **reinforce their belief that women can be scientists and entrepreneurs.** Notably there have been more female ESA award winners than male.

The impact of this programme has led to **a pipeline for future innovative solutions for the traditional food sector. T**RADEIT has encouraged research managers to become **involved in EU funding** opportunities with the TRADEIT partners and contributed to **Marie Curie successes** of participating researchers. Furthermore, the up-skilling and mentoring provided been instrumental in the development of a **spin-out company; a spin-in company**; supported/encouraged the development of **3 other ventures** and continues to mentor a number of ESA participants with their business ideas. The involvement of 40 SMEs in the academies has directly linked the companies with researchers, research centres and the wider network of TRADEIT SMEs across Europe with researchers, the outcome of which only time will tell.

A strategy for the sustainability of the ESA as a business model, with its associated network, has been devised by the development team and has been launched as 'Design4SMEs'. The ESA programme designed by TRADEIT was rebranded as part of the sustainability strategy as 'Design4SMEs'. Notably the sustainability credentials are strongly evidenced by the fact that the 2017 Design4SMEs event has been secured and will take place within the frame of the EFFoST Congress in Stiges Spain. This sustainability potential has been boosted further via **the CommBeBiz innovation award**. Through this Design4SMEs will work with EBN mentors **towards commercialisation** of the program. Whilst designed for food researchers Design4SMEs it can be applied with any other sectors or groups in the hands of an experienced training facilitator. The open access of online training materials will support the development of an enterprising and entrepreneurial mind-set in research communities across the EU and promote the ethos of business start-up. The impact of this will be the development of an entrepreneurial culture in food research across Europe, leading to future **product** and **process innovations** and **commercial outputs.** The effectiveness and impact of the Entrepreneurial Summer Academy will be of interest to **European Policy** makers in the context of the current European focus on innovation as a means to achieve the goals of sustainability cohesion policy, smart specialisation and job creation.

The approach adopted by the WP4 team will continue to build upon design thinking as part of our format for 'Design4SMEs' as it embodies the philosophy of the approach we believe is the most effective at supporting innovators from multi-disciplinary teams and from a range of learning traditions. Our rationale for this is that the approach is iterative and evolving; problems and potential solutions are framed and re-framed in a process that is divergent and convergent and applied. The ESA model has been the product of design thinking and we hope to continue to utilise this concept and the outcome of the project for many years to come. We will continue to create awareness through Taste of Science and the TRADEIT and individual team networks and ESA alumni.

Following the 2014 ESA winner **Dr Ricardo Alhandro**, University of Porto and CIMO-Mountain Research Centre of the School of Agriculture of the Polytechnic Institute of Bragança (Portugal) collaborated with TRADEIT SME Partner Ferreira & Filhas using his research and technology to produce new products. Ricardo also launched a second new venture which he announced at ESA 3 –

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

'ReadyToPub' – a support service to scientific authors looking for help with publishing their work. This will be launched January 2017. Following the final TRADEIT Conference in Brussels, Ricardo wrote to the TRADEIT team:

"Dear all: And now? TRADEIT ended? TRADEIT is officially over, but inside each one of us the "Fire in the Belly" is still on and will endure. For me it was a pleasure to share with all and each one of you the moments I passed in the TRADEIT meetings. The Irish Entrepreneurial gaiety, the British Networking humour, the Swedish Business Model Viking Warrior, the Italian class of ESA 2014, and the German consistency of ESA 2016 will continue to inspire me to continue my career. I learned a lot with all of you and 'ReadyToPub' is the example of your excellent job, since I just got the enough courage to advance due to the inspiration of a group of marvellous of Professionals. If you need something please tell me, I'll be glad to collaborate with all of you. From my heart, a big hug, Ricardo."

Also from ESA 2014 **Gary Goggins** from the National University of Ireland, Galway set up a business based on his research shortly after the ESA 1 in 2014. His business focuses on localised and sustainable food systems, the central aim being to explore and empirically investigate the role of organisations and businesses in sustainable food consumption. **Jiangyuan Fu** ESA 2 winner from 2015 is progressing towards the completion of her PhD but is also working with Irish farmers, trade bodies and producers to support the Irish export market. She believes that China has emerged as a key opportunity for not only the Irish dairy industry but the global dairy industry. **Dr. Marco Della Gala** participant from ESA 2 in 2015 has secured a Marie Curie scholarship and is currently pursuing his research in the UK. **Dr Małgorzata Nowacka** is an assistant professor at Warsaw University of Life Sciences, Faculty of Food Science. In 2009 she received a Ph.D. in agricultural sciences in the field of food technology and nutrition at this University. She set up her business after ESA 2 in 2015. **Dr. Estefanía Núñez Carmona,** PhD in AgriFood Sciences, Technologies and Biotechnologies CNR-INO Sensor Lab and winner of ESA 3 in 2016. NASYS Srl is a spin-out company of the University of Brescia and her PhD research contributed to the development of this company based on a model / process referred to as S3. The development of S3 means that it is possible to monitor the fermentation progress following the changes in the volatile profile of the food matrix. TRADEIT SMEs are very interested in the outcome of her research and are in contact with NASYS to discuss how it might be utilised.

Dr. Oscar Goñi (Research Manager winner in 2016) is a protein biochemist with experience in the purification and characterization of functional proteins, enzymology and development of protein biomarkers. He currently holds the position of Postdoctoral Researcher with Shannon ABC (Institute of Technology Tralee). Oscar is also a named inventor on a number of patents and has also published and presented widely in the field of photochemistry, plant physiology and food chemistry. Oscar also received a CommBeBiz Innovation Award in 2016 for this idea LoMoC.

Networking and Collaboration

TRADEIT was designed to deliver a durable network that would benefit the producers through overcoming the vulnerability of their small scale and limited resources through networking and learning. It can be difficult for SMEs, individually, to seek out appropriate partners for collaboration.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

An intermediary or broker, often in the form of a public authority, can take on this role. The broker can also take on the role of network architect and caretaker as these are activities that individual SMEs have neither the time nor inclination to undertake. The TRADEIT project, supported by EU funding, has acted as such a broker. However, what is clear is that relationship development and transformation occurred at the level of individual firms, highlighting the potential for relationships between network members to extend beyond the lifetime of the funding.

It was never far from the mind of the TRADEIT consortium that creating a network is not a passive process and that bringing people and organisations together does not automatically create a network. Consequently, the TRADEIT consortium has actively and pro-actively worked toward the development of a **dynamic and productive network** that **delivered operational and economic benefits to SMEs food producers**. The action learning ethos of TRADEIT has enabled the project team to more effectively develop the TRADEIT network. Similarly, the Network Support activities incorporated into the TRADEIT have positively contributed to the impact of the Technology and Knowledge Transfer Events. SME action learning interventions have facilitated SME/SME and Hub Advisor/ SME discussions which have **positively contribute to uptake** through the **sharing of the operational and economic benefits** derived from incorporation of technological innovations and best practices in other firms and settings. TRADEIT Advisor action learning support provided valuable insights into the transfer of innovations to Traditional Food SMEs in the context of **innovation support**, **up-take** and **focus of the individual businesses** which improved the Advisor / SME interactions, learning and impact assessment outcomes. The focus on the development and monitoring of the network activities **has generated meaningful collaborations at regional, cross-regional and cross-border levels**. The collective outcomes include **commercial partnerships, research collaborations, Food Entrepreneurs, innovative products and processes, spin-out and start-up companies' that transcend regions and borders across Europe.**

As a strategic network, TRADEIT was set up initially to help traditional food producers exploit their ambition to grow and develop through innovation. The network comprised researchers from many disciplines, and firms from three sectors (bakery, meat, and dairy) in each of nine hubs spread over eight countries. As the project progressed, action learning facilitated the emergence of a learning network, different from the original collection of firms who agreed to participate in the project. From that early set of disconnected ventures, the partners formed a network within which experience was shared, questions were asked, and through reflection, insights and actionable knowledge were generated at individual and organisational levels. The involvement of both researchers and practitioners in the action learning process in this network ensured commitments to both action and learning in a context where all participants were actors and inquirers. The focus was on real issues faced by participants. However, learning was not limited to the level of individual participants and organisations. Traditional food producers all face similar issues: they are small, often struggle to compete against larger food producers, and frequently find it difficult to reconcile expansion and growth with a traditional ethos. Thus, network learning occurred in cycles of action learning as the actionable knowledge that was generated in response to an issue faced by one organisation has application to issues faced by others. Firms in the network were exploiting this knowledge to address their issues and to develop and grow and simultaneously.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

TRADEIT matured from a network of disconnected individuals to a learning network characterised by knowledge sharing, co-creation, and learning. The various WP5 deliverables capture the elemental results, each with potential impact for traditional food producers, managers, consultants, action learning facilitators and researchers. However, in essence, having reviewed the TRADEIT experience, the Strategic Plan for Network Sustainability represents the final result from this work package. The plan provides a framework "for the sustainability of the TRADEIT network beyond the lifetime of the project so that TFP SMEs may continue to benefit from the supports offered and continue to develop into progressive, innovative regional businesses competing in the arena of an increasingly global European market" (DoW Part B). The aim was not to guide the continuation or sustainability of the current TRADEIT project; rather, it was to guide the establishment of a Future Food Design Network, as a post-TRADEIT model which may function into the future.

The network action learning process enacted in TRADEIT did not happen of its own accord. Neither will it happen in the future just upon a clear reading of the project deliverables. The thrust of the Strategic Plan for Network Sustainability is towards implementation by a variety of practitioners, such as managers of TFPs, who may be at the centre of a strategic improvement initiative. Such practitioners should benefit from codifying combinations of organizational and network implementation guidelines emerging from TRADEIT into actionable knowledge. For this audience, the final results include the actionable knowledge in terms of implementation guidelines, a key component of which is the learning mechanisms and how they are enacted and case studies. As a set, the case studies are comparable so that a rich picture emerges of the range of firms and experiences from TRADEIT. This richness is of value in its articulation of the potential and firm-level impact of TRADEIT, as a respectful non-directive means of sharing the experiences of food producers with others, as a basis for the continuation of the TRADEIT network, and as a stimulus to Hub Advisors and food producers to question and reflect upon their practices with a view to learning and applying that learning.

Strategic Research and Innovation Agenda

An extensive consultation process was completed in which involved all stakeholders in the agri-food sectors (business, research organisations, public authorities, civil society organisations) regionally and nationally. However, it was the SMEs who were the majority stakeholder in the process and as a consequence the Strategic Research and Innovation (SRIA) developed is unique in that it is entirely based upon the inputs and needs of small to micro scale producers which is hugely valuable. This SRIA has successfully prioritised future innovation activities of potential benefit to SME involved in the dairy meat and bakery sectors. There are 21 actionable challenges which will be of significant value for decision making and action planning by policy makers and funders at a regional national and EU level. Actions taken based upon the SRIA findings have the potential to contribute to the development of a more sustainable SME base food system. It is anticipated that the TRADEIT SRIA will contribute to strategic policy recommendations contributing to the overall competitiveness of the Traditional Agri-food sector.

Whilst each of the 21 challenges has huge merit there is a wider, the 3 years of SME engagement, consultation, observation and analysis of the SME food sector and associated support systems have revealed an urgent need within the food sector for the development of a support platform which

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

provides sustainable decentralised support to the SME food producers. A framework that provides localised access to innovations in knowledge, technology and operations facilitated by regionally placed intermediaries and advisors. This system of approach is already well validated for the primary sector, with an extensive farm advisory service in place. A similar approach would be of immense value for the SME food producers.

The existing farm advisory service falls under the Agricultural Knowledge and Innovation System (AKIS). European AKIS are complex and very diverse. Each country has developed a system that corresponds to its particular situation, needs and actors but at the core of each is a process which involves people and organisations to promote mutual learning, to generate, share, and utilize agriculture-related technology, knowledge, and information (which include the food industry).

This presents a potential opportunity for action, one focusing on strengthening of the position of the small to micro scale food producer within the Agricultural Knowledge and Innovation System (AKIS) via the provision of an Advisory Service specifically for food producers.

With the predominantly rural location of SME food producers, the level of shared challenges between the sectors holds the potential to be a natural extension of the advisory services. Taking it one step further and acknowledging the systems approach advocated for the future of the food innovation ecosystem promoting development an FKIS, a Food Knowledge and Innovation System as an integral pillar of the AKIS system would significantly strengthen both the microscale SMEs and regional food value chains. In the context of innovation and research ecosystems within the European research area, the European Innovation Partnerships (EIPs) (of which there are 5) are notable. The EIPs are promoted as a new approach to research and innovation which pool expertise and resources; bringing together public and private sectors at EU, national and regional levels, combining supply and demand side measures. All EIPs focus on societal benefits and fast modernisation. They support the cooperation between research and innovation partners so that they are able to achieve better and faster results compared to existing approaches.

The EIP most linked to food processing is the EIP in Agricultural Productivity and Sustainability established in 2012. It is an integral part of the DG Agri Innovation ecosystem, and its role is described as follows: “The agricultural European Innovation Partnership (EIP-AGRI) works to foster competitive and sustainable farming and forestry that 'achieves more and better from less. It contributes to ensuring a steady supply of food, feed and biomaterials, developing its work in harmony with the essential natural resources on which farming depends”’

The EIP Agri has a significant range of innovation and support formats and infrastructures, such as workshops, focus groups and operational groups the focus to date has been predominantly relating to primary production. Greater integration and promotion of the small-scale food processor as a key actor in rural food chain operations and dynamics would contribute significantly to the research and innovation needs of these enterprises.

These opportunities, for development of a synergistic, integrated Food Knowledge and Innovation System (FKIS) and greater integration of the small-scale food producer within the EIP Agri agenda merits further consideration and discussion at regional and centralised policy levels. This approach

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration GA 613776.

aligns with directly DG AGRI's recently prioritised areas of sustainable processing and enhancement of rural areas via creating new openings for growth. The flow of knowledge, collaborations and partnerships that would emerge could contribute significantly to the human and social capital within the rural and semi-rural areas within which farmers and food producers co-exist. Furthermore, integrating an FKIS within AKIS aligns with the Food Systems approach strongly advocated by the DG RTD within the European Commission. Strengthening the support of small to micro scale SMEs and increasing the connectivity between farmers and processors at the regional level would enhance food chain dynamics and allow for the development of enhanced food value chains and systems enhancing economic activities and efficiencies within rural and semi-rural areas contributing positively to the overarching goals of sustainable food production (and processing) food and nutritional security.

Dissemination

The effectiveness in the TRADEIT dissemination and communication activities is evidenced in the manner in which the TRADEIT network has expanded over the 3 years of the project, the strong brand and identity of the network, the effective and diverse use of multi-media, effective targeting of multi-stakeholders, dissemination activities in the 7 languages of the project, ability to communicate with SMEs, extensive EU visibility at academic and trade events and extensive engagement on TRADEIT dissemination platforms. The major foreground outcome of WP7 is the development of all of the TRADEIT dissemination materials and tools. While the direct dissemination of the TRADEIT outcomes will continue beyond the duration of the project, a unique outcome is the creation of the technology transfer vehicle *Taste of Science* that can bring scientific developments in an understandable manner to non-scientific SMEs. Several of the partners have signed a memorandum of agreement to support its continuation (led by EFFoST and TRADEIT coordinating institution, IT Tralee). They will continue to support and develop the vehicle beyond the end of TRADEIT. Indeed, since EFFoST is the disseminating partner in a wide range of continuing EU-funded project consortia, it has a secure life for the next 3 years by which time it is hoped that it will be developed as a self-sustaining vehicle. Immediate development plans include a multi-language version. Overall, the TRADEIT brand is well established; there has been a significant amount of dissemination on both a regional and EU level. Through the various distribution channels we were able to promote the TRADEIT project amongst many stakeholders:

Overall *TRADEIT has achieved its goal of making a real contribution towards a* ***socially inclusive and healthy Europe, strengthen regional competitiveness, increase market share for SMEs, contribute to smart specialisation strategies,*** *contribute to the goals and objectives of Europe 2020, the Innovation Union Flagship Initiative, Horizon 2020.* A new network has been developed with significant cohesion, capacity and impetus to continue to positively contribute to the development of the SME food sector; all of which has been achieved through the investment and support of DG Innovation and Research for which the entire TRADEIT network is extremely thankful.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration GA 613776.