



Original Article

A Comparative Research on Communities of Practice, University Knowledge Exchange and Business Model Changes between the United Kingdom and Vietnamese Agritech Startups

Christopher J. Brown¹, Nguyen Thuc Huong Giang², Nguyen Thi Thu Thuy^{2,*}

¹*University of Hertfordshire, Hatfield, Hertfordshire, AL10 9AB, UK*

²*School of Economics and Management, Hanoi University of Science and Technology, No. 1, Dai Co Viet Street, Hai Ba Trung District, Hanoi, Vietnam*

Received: December 06, 2021

Revised: April 01, 2022; Accepted: April 25, 2022

Abstract: The paper explores the expectation that agritech startups in the United Kingdom and Vietnam gain benefits of Communities of Practice (CoP), and how CoP help those businesses to tackle the challenges of business model changes for their growth enhancement. The co-creational collaboration between academics and agritech startups when working together on knowledge/experience-sharing through CoP is also investigated. The research uses a case-study approach, meetings, interviews, and documentary data to capture the events, actions and changes of attitudes, behaviors, and expectations of eight agritech startups towards their use of CoP. The research indicates a significant change in the business models of the startups when integrating into temporal CoP. These agritech startups often exploit their existing business models, while exploring a portfolio of new business opportunities that could generate new growth engines. Some of them quickly move into a value creation phase by which they achieve quick-wins and medium-term actions that generate both financial and non-financial business value. The research results may have implications for policymakers and practitioners who want to develop these types of interventions. Businesses in other fields can also better understand the value and potential of temporal CoP and start applying them.

Keywords: Agritech, business model change (s), university knowledge exchange, communities of practice, startup (s).

* Corresponding author

E-mail address: thuy.nguyenthithu@hust.edu.vn
<https://doi.org/10.25073/2588-1108/vnueab.4723>

1. Introduction

The United Kingdom (UK) did not just lead the Industrial Revolution, it also led the Agricultural Revolution. As science and technology change the face of agriculture, the UK is now in the vanguard of new agricultural technologies, pioneering new approaches to food and farming systems. The UK has a unique macro-environment for agriculture and therefore is an attractive place to develop and commercialize agritech innovation, over 70% of UK land is dedicated to agriculture [1]. The UK Government is keen to support innovation in agriculture, and have funded four agritech centres [2]. Agritech startups have received funding for over \$3.4 billion, a 70% growth over the previous year in Europe [3]. The UK government continues its investment in the agritech sector, seeing it as playing a major role in inspiring new diversity of green technologies in the UK farming sector.

Agriculture and agribusinesses are among the key economic sectors in Vietnam, accounting for 14.85% of the country's GDP in 2020 and 39.45% of the total employment in the country. For the importance of this field, the Vietnamese government had the foresight a few years back to spend more in terms of high-tech farming productions and also get the local IT and the tech industry to get more involved in the development of agritech startups, which makes Vietnam one of the leading countries in Asia regarding agritech startups. With the growing agritech trends, the creation of more innovative tools by agritech startups is expected to sustain food security in Vietnam and significantly contribute to the country's economic development. Vietnam currently lacks support for emerging and high-growth startups, such as "lean" business training, access to capital, unsustainable production methods, a lack of a talented workforce, funding, and scale, and being slow in regulatory reforms. This often means that corporate agribusinesses and some 39 million smallholder farmers that depend on agriculture are missing out on critical innovations to drive productivity and

competitiveness. Currently, agritech startups in Vietnam respond to these challenges by developing environmentally friendly, affordable, and easy-to-integrate solutions.

Although the UK and Vietnam are somehow different in agricultural technology development, emerging and established startup companies in both countries have much in common when dealing with the numerous challenges, including climate and adverse weather risks, market dynamics, unsustainable production methods, and difficulties in transitioning ideas and expectations from the laboratory-designed solutions, into the commercial marketplace. Such startups seek help from CoP, which have proven increasing important in their role in giving startups access to new digital transformation techniques [4]. CoP are also known for their role in providing strategic tools to help manage knowledge, expertise and practice between collaborative members, and some specific forms of CoPs have been established to help their members adapt to the fast-changing business environment, especially those driven by universities [5] These CoP focus on knowledge exchange between knowledge hubs - those parties who regularly create and develop new knowledge (technologies, know-how and processes) - and the enterprise community that has significant experience of meeting marketplace needs and wants, providing opportunities for new business models of the agritech community.

However, while the UK and Vietnamese governments are increasingly supporting schemes to provide high levels of technology and knowledge exchange for both startups and scaleups, calling on their universities/research institutes to share their knowledge, current research on those CoPs is still limited. Research studies evaluating the limited uptake of these nascent business models, especially in agritech startups, have suggested two primary reasons: the relatively limited dissemination of learning experiences from either being involved in pilot studies, or other business startup workshops; (2) the apparent failure of business support services to influence deeper responses from these

targeted agritech startups, helping them change their business model to sustain commercial success.

This paper makes several contributions. Firstly, it adds knowledge to the current literature by filling the research gap in the domain of CoP, which is quite limited, particularly around the areas of university/research institutions knowledge exchange and support in business model change through looking at: (1) How CoP facilitate the knowledge transfer from universities/research institutes to agritech startups (2) the impact of CoP together with university knowledge-exchange on the possibility to change business model of agritech startups. Secondly, the study is conducted in the two countries with different levels of development, and this therefore can bring out practical policy implications for emerging countries. The paper explores the issues and challenges of knowledge exchange, through these informal CoP by investigating existing empirical research on the challenges that these agritech startups face in commercialising their products and services by using case studies. As a latecomer in the agritech field when compared with the UK, Vietnam can learn from the UK's experience to enhance the role of CoP and to strengthen the relationship between CoP, academics, practitioners, experts and agritech startups.

2. Theoretical basis

CoP are “groups of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly,” which are often formed and maintained by “a group of people having a common identity, professional interests and that undertake to share, participate and establish a fellowship” [6]. According to Wenger [7], CoP have three defining characteristics: the domain, the community, and the practice. The domain is the common interest that links the community; the community is the joint activities in which members engage; and the practice refers to the

shared stories, tools, and resources from which the group can draw. CoP can effectively support and enhance a company's strategic capabilities, thanks to the nature of collective learning, knowledge creation and sharing. Indeed, knowledge strategy is an integral part of the company's overall strategy, which is intended to lead the company through changes and shifts, securing its future growth and sustained success. Therefore, companies based on determined entrepreneurial strategic orientations need to understand what knowledge will result in commercial success. They need to keep this knowledge on the cutting edge, deploy it, and leverage it in operations and spread it across the organization to generate capabilities. Using CoP in the strategic context is a practical way to manage knowledge as an asset systematically, just as companies manage other critical assets [8].

The life cycle model of these CoP must be aligned with the different knowledge management (KM) roles and responsibilities, and importantly the needs of its community partners, adapted from Dalkir [6]: Knowledge journalist - helps build, identify and extract valuable content from community members; Knowledge taxonomist - helps organize content once its produced; Knowledge archivist - helps store knowledge and experience, gaining support for changing enterprise processes, systems, and strategy.

The life cycle of these CoP is built upon the continuous process of learning and reflection of CoP members. It includes 3 phases: (1) Phase 1: before knowledge exchange, where all parties identify common goals and build trust with each other; (2) Phase 2: knowledge exchange, where the commitment changes to value creation; and (3) Phase 3: sustaining community, when parties agree on a space to meet, swap artefacts and discuss until the knowledge transformation is completed.

Universities and research institutes play an important role in providing knowledge exchange to industries. Knowledge exchange has depended over the years on specific units to bring together global scientific knowledge and embryonic technologies. They conduct some of

the early-stage development of product concepts [9] and present these to enterprises who can best develop viable products and services. Universities and research institutes are generally perceived to be large public bodies that have a significant hand in the production of human and social capital, which most communities acknowledge as being important for both the functioning and growth of any knowledge-intensive based economy. When integrating into CoP, universities and research institutes have to join in all the 3 phases their life cycle as mentioned above.

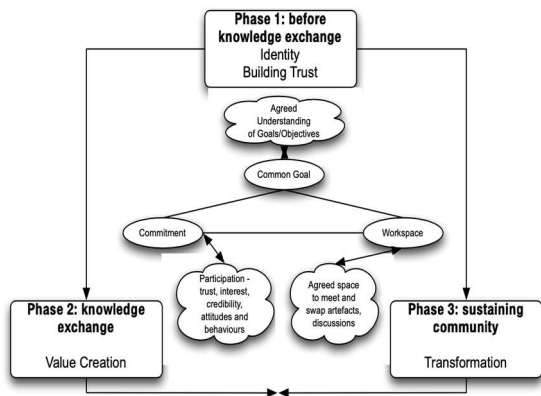


Figure 1: The life cycle of temporal CoP and knowledge exchange
 Source: Adapted from Dalkir [6].

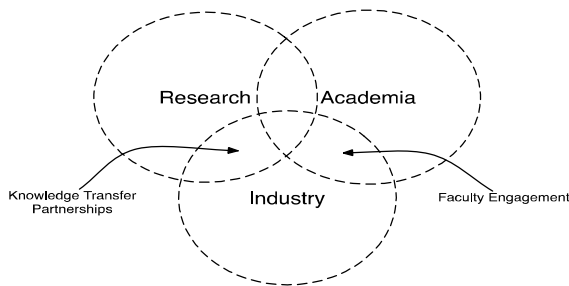


Figure 2: Knowledge exchanges among academia/research/industry
 Source: Brown and Proudlove [10].

CoP between universities/research institutes and agritech startups are unique communities that bring together partners that would not normally share the same formal professional affiliations, or informal enterprise support

networks. Effective CoP are often a special outcome of entrepreneurial eco-systems, and we are evaluating the conditions that make these ecosystems more or less favorable for entrepreneurship/startup activities.

CoP can help companies develop new strategies to complement existing ones, realize a business strategy, and go beyond to change their business models. Business models and business strategies have a close relationship, forming two essential preconditions and fundamentals of a company’s existence. While a business model is an outline of how a company plans to make money with its product and customer base in a specific market, a business strategy describes and explains how, where and for what purpose and goal a business model will be used. The main typology of generic strategies includes prospectors, defenders, analyzers, and reactors. For agritech startups, the strategic orientations result from the entrepreneurs’ and the enterprises’ analysis of internal and external environmental factors (competitiveness, marketplace uncertainty and ambiguity, market orientation, economic growth), and reflect their values, attitudes and practices towards ecologically driven innovation. Companies change their business model to fit business operations within specific prevailing business environments, to identify and explore growth opportunities, with the aim of creating sustainable competitive advantages [11]. CoP are identified as playing a critical role in the promotion of learning and innovation in organizations and they can be a very powerful tool to generate sustainable advantage and improve the business model for successful strategy and better growth. However, benefits from CoP vary with the types and development phases of enterprises. Thus companies need to identify the potential CoP that will effectively nurture their entrepreneurial strategy and business model. For agritech startups, when applying high technology to agriculture, it is necessary to change the company’s business model towards a more modern and efficient direction, therefore, they need to consider using the CoP

model with the participation of universities and research institutes.

3. Research methodology

3.1. Method

With research that is focused around the perspective of the business entrepreneurs, it is important that “researchers need to develop the capacity to see their topic with new and different lenses in order to look beyond and transform their own knowledge” [12]. For this reason, we chose a qualitative approach to explore the understanding of our business entrepreneurs through interviews and observation. In order to explore the expertise exchange, we adopted an interpretative epistemology and thus feel confident that we could “understand the world from the perspective of the participants in that world” [12]. We therefore adopted an inductive approach to the development of theory building, and so follow a traditional social constructionist interpretative methodology [13] in terms of data collection and content analysis.

The study uses a “case study approach,” which is the best approach when “How” and “Why” questions are the objective of the study [13]. The case study approach provides a “unique strength which is its ability to deal with a variety of evidence - documents, artefacts, interviews, and observation - beyond what might be available in a conventional historical study” [15], and using multiple cases will “increase the commonality or variety of interpretations that they produce, providing a greater claim of generalizability” [16].

We designed the questionnaires based on the business model canvas that is used by professionals and businesses worldwide to describe, design, and analyze their business models. From the model, the company can see clearly its key partners, activities, resources, value propositions, customer segments and relationships, distribution channels, and cost structure and revenue streams in recent times. Among these, the participation and support of

CoP and university knowledge exchange if they exist are clearly demonstrated through the impact on the change of the business model and its performance. In our questionnaires, we mostly focus on the companies’ current strategy, targeted customers, customer segment, value proposition, channels and customer relationships.

3.2. Research questions

In order to understand the use and impact of CoP and university knowledge exchange on agritech startups in their business model change, the following research questions are raised:

- How is their current business model challenged by the lack of knowledge and expertise?
- How do CoP facilitate the knowledge transfer from universities or research institutes to agritech startups?
- What are the benefit and impacts of CoP together with university knowledge exchange to the possibility to change the business model of agritech startups?
- What are the startups’ expectations of the benefits that these temporal CoP can bring to meet their short and long-term needs?

3.3. Data collection

Data was collected in 2021, with six agritech startups in the UK and two in Vietnam, to better understand differences among those companies in the two countries in perceiving the benefits and needs of CoP for their business operations. We used the convenience sampling method in the survey. All the six cases of the UK agritech sector participated in a Climate Change Initiative Programme (called the Shaked Programme, which is funded by a French central bank). We chose two startups in two different locations that have collaboration with several CoPs and universities, to see the similar and different points in comparison with the UK agritech startup cases. The highest level managers of the startups were chosen to interview.

To assess the business model, some elements of the business model canvas are used with

respective questions to collect data from the research cases.

4. Analysis and key findings

The findings are presented in the form of the eight enterprise case studies, including six UK cases (from I to VI), and two Vietnamese cases (VII and VIII). We describe and analyse the key challenges of each company in their value propositions, channels and relationship management, needs of CoPs, links with academic institutions, and what they achieved from the relationships. With support from the Shaked Programme, the UK enterprises entered into an informal CoP - focused on the specific areas of support/expertise needed and developed their business models, while the two Vietnamese cases benefit from the knowledge of different types of CoP.

4.1. Agritech startups case study

As previously stated, the UK and Vietnamese governments are increasingly focusing on the need to support startups in many of the key sectors for productivity and growth enhancement. Table 1 provides some background information about the operations and characteristics of those cases.

Enterprise I

This startup is in the early stages of proof-of-concept, and as such needs to establish a pilot plant. Relating to relationship management with university and research institutes, the early stage is in the the proof-of-concept stage, so the main value of the programme is the access to both resources of the university/research institutes and their expertise in the different elements of the production process.

Table 1: Questionnaire for assessment of business model change

Elements	Description	Key questionnaire
Customer segment	The businesses' customer segments have the jobs, pains, and gains relevant for selling their value propositions.	What has been your turnover in the last 12 months and how does this compare to the previous 12 months? What has been your growth rate over the last 12 months (unit sales)? What are your key target audiences?
Value proposition	The businesses' value proposition resonates with their critical customer segments.	How do your products perform compared to those of your competitors? How are your products and services differentiated from the competitors?
Channels	The businesses have found the best channels to reach and acquire their critical customer segments.	What are your sales channels like and are you heavily dependent on intermediaries to get access to your market? What direct access do you have to the target customer segment?
Customer relationship	The business has developed the right relationships to retain customers and repeatedly earn from them.	What buy-in do you have from your customers and what are the dropout rates and switching costs for customers to switch to your competitors? What is the percentage of your customers who are locked in for the foreseeable future?

Source: The authors' development and synthesis.

Enterprise II

Enterprise II's product provides a more convenient local process to convert the bi-product into a rich compostable product desired

by the horticultural sector. Enterprise II looked at other R&D partners who could develop further products from raw materials. They need to work with CoP members to identify nascent partners

in this particular field. They were provided with relevant contacts by useful network partners and members of CoP. The company also has subsequently won a UKRI project with a

university to help create its first B2C product, the result of which will be a product line bearing the business's branding, and will be sold through nurseries and garden centres.

Table 2: Case study characteristics.

Firm characteristics	Strategy	Market dynamics	Key target customers
I (UK)	Producing Chitin film	Setting up a biorefinery	Key customers of Chitin are those who favour compostable, bio-based, and eco-friendly materials with antibacterial, non-toxic and hydrophobic properties.
II (UK)	Compostable plant pots from Alpaca manure	Open the market direct to farmers	Its customers are 1,500 Alpaca farmers distributed around the UK, generating over 92 tonnes of nutrient rich manure per day. All have a manure management issue.
III (UK)	Drone imagery to save time and money	Currently piloted in Malaysia	Enterprise III's end users are farmers and growers, but their direct customers are the broader pipeline of products/services to the agricultural sector e.g. farmers/growers, agrochemical companies, agronomists and farm management companies.
IV (UK)	Aquaponics to accelerated tree growth	Small memo in construction	Targeted customers for this agroforestry modular system are small-large farmers, with a particular interest from local councils and county authorities, and community project funders.
V (UK)	Soil health intelligence	Agronomists and farm-managers	Enterprise V's end users are farmers and growers, the future of soil health intelligence - our handheld sensor product provides comprehensive analysis of soil health in field in 5 minutes.
VI (UK)	Plant-based proteins	Plant-based food protein markets	Enterprise VI aims at creating healthier and more nutritious proteins from plant-based foods using more sustainable crops.
VII (Vietnam)	Producing fresh vegetables	Using hydroponics and automatic environment control systems	The company's main customers are individuals and households who want to use fresh and clean agricultural products in Hochiminh city. They focus more on groups of middle-class individuals and households.
VIII (Vietnam)	Providing services and products for the seafood industry	Organic agriculture with high technology	Start-up VIII specializes in providing products and services for the seafood industry, using the very natural sources of raw materials to create the highest quality and safest products.

Source: The authors' synthesis and analysis.

Enterprise III

What is different about Enterprise III's solution is that it uses free satellite data combined with AI to offer truly affordable solutions to help farmers/growers of all sizes

reduce their reliance on harmful products and improve their profit margins. Enterprise III is already ahead of the game in terms of powerful relationships with several governments and working with their agricultural departments on knowledge exchange. It has the challenge to

develop a wider network of farmers/growers to better understand the key challenges that affect the sustainability of their farm/crops.

Enterprise IV

Enterprise IV's core value proposition consists of offering accelerated growth of trees and provides certifiable contributions to a positive impact on the climate crisis. CoP allow optimal shared advice, knowledge, and experience on successes and failures. The company has challenges in accessing other farmers who are willing to engage and fund a full pilot system. These are the opportunities to redefine the business model and re-pitch it to other investors. During its period of operation, the regular meetings with the CoP have created a series of activities and actions for further work.

Enterprise V

The key challenge for the company regarding value proposition is to convert what is clearly a product differentiator into something that is appealing to the target customer. Enterprise V has a working prototype and is currently working on the AI (machine learning) side to provide useful information on the biological soil health indicators. CoP have supported the company in developing a trial plan that identifies the critical product testing essential for commercializing the product/service. They also have received support from the research institutes in the testing phase.

Enterprise VI

Enterprise VI is at the working prototype level, and therefore needs more customers to test its protein extract. The company is trying to attract innovation investment from the UK, which requires greater identification of the traction and validation of the process/product in the marketplace. The Shake Program has helped to improve the skills on developing and being successful with the company's future bids or gaining R&D grants. Besides, one of their main CoP achievements is that they get further in curricula projects for the university

postgraduates and have improved its network with university/research institute researchers who are interested in co-research opportunities.

Enterprise VII

Start-up VII was established in 2016 and committed to producing fresh vegetables with three "no" criteria: no pesticides, no growth drugs, and no preservatives. To do that, the company has strictly followed the provisions of the Global G.A.P and ISO 22000: 2005 standards. Enterprise VII uses indirect distribution channels to sell to large supermarkets in Hochiminh city (such as Coopmart, Nam An) and builds its own sales system with partners in various residential areas. It is seeking around for types of co-partnerships, and with the support from CoP, its suppliers' and customers' networks have been expanded. It still has many shortcomings in customer care, as it did not really pay attention to value-added services for customers. It has not achieved any support from any CoP on this issue until now and intended to make more efforts to improve the customer care skill to be more professional.

Enterprise VIII

Start-up VIII established its vision and mission towards organic agriculture, using the very natural sources of raw materials to create the highest quality and safest products. Enterprise VIII's products are grown to Global G.A.P standards, are strictly selected, processed, checked, and have their origins traced all the way. They have received support from CoP in consultation and the adoption of cutting-edge technology for cage fish farming or all-female shrimp aquaculture developed by Enzootic. The company has established both direct and indirect channels of distribution, yet the indirect channel acts as the main one. The customer loyalty rate is 50%-70%, which is quite a positive number compared to other competitors in the food service industry. Customer care service need improving when production on the farm reaches a higher scale.

Table 3: Business Model Changes under the Impacts of University Knowledge Exchange and CoP

Perceptions of the need for business model change, entrepreneurial intentions	Business Model Changes - Before and after CoP comparison				
	University/institution knowledge exchange	Before having supports of CoP		After having support of CoP	
		Key challenges and expected impact	Key business model and entrepreneurial strategic orientations	Changes in key challenges and actual impact	Key business model and entrepreneurial strategic orientations
Enterprise I The very start of its business model - looking for exemplars in the sector	It needs an expert in CoP who understands polymer extruders, consumer brands, and UK retailers. It also got the mentoring and coaching from the CoP, as well as the access to both resources of the university/research institutes and its expertise in the different elements of the production process.	Fierce competition in bioplastic field. ¹ Early success in attracting investment ²	Develop new markets ⁴ Reactive ⁵	How to engage with these new bioplastic customers ¹ Best marketing practice to existing markets ³	First life cycle testing of the product and its quality ⁴ Analyzer ⁵
Enterprise II Bringing a precise agritech solution to over 50,000 farmers, cheap, easy-to-use and practical	It needs the support from CoP in identifying opportunities for additional revenue streams for the UK's Alpaca farmers. This is essential for selling Enterprise II's solutions and developing further opportunities.	Bringing a new product to market ¹ Quick solutions to market identification and sales output options ²	Develop new markets and increase share of existing market ⁴ Analyser ⁵	Expand the cost-effective business model of Alpaca farmers ¹ Development of fully-field tested products, and development of sales tools for commercialization of two of the main product lines ³	Develop the business model ROI for Alpaca farmers ⁴ Prospector ⁵
Enterprise III Long sales cycles in agriculture is always challenging for startups	It needs project management tools to measure??? more accurately opportunity costs and provide better AI management of projects and its receives support from the Shake programs. It needs to extend the partnerships with other state departments and governments around the world and has already got the support to develop green credentials of land management on the reduction of pesticides in the EU and worldwide.	Re-packaging satellite data is being offered by many ¹ ??? Quick solutions to market identification and sales output options ²	Develop new markets and increase the share of its existing markets ⁴ Analyser ⁵	How to engage with these new bioplastic customers ¹ First life cycle testing of the product and its quality ³	Marketing best practice to existing markets ⁴ Analyzer ⁵

Enterprise IV Developing multiple products with applications across the world	It needs expertise and resources to develop a full-sized prototype. CoP have supported the company in attracting significant interest from other parties willing to invest and commit resources.	Creating a convincing business model for target customer markets. ¹ Comparatively new business, needing more products and systems for key target customer segments. ²	Core resources around aquaponics, project management, engineering. ⁴ Analyser ⁵	With success in this funding stream, we will have a full-scale pilot to provide evidence of the growth model. ¹ Necessary to make this business model work, main deliverables are there, but without further help fiscally and commercially it won't succeed ³	Developing the channels to market. ⁴ Prospector ⁵
Enterprise V Changing agronomists and farm-managers' approach to managing the application of fertilizers and its consequential harmful run-offs	With the support from CoP, it has undertaken a market intelligence and insight report on the industry regarding using different technologies/sensors to capture soil health. It also needs to utilize CoP networks and access practitioners and advisors to understand how farmers and agronomists obtain their soil health data.	Changing farm-managers approach to evaluating soil health. ¹ Quick solutions to market identification and sales outlets. ²	Develop new markets Analyser ⁵	Reducing the overuse of chemicals and fertilizer on farms ¹ Development of fully-field tested products, and develop sales tools for commercialization ³	Developing the business model ROI for the new soil health product. ⁴ Prospector ⁵
Enterprise VI Changing the nature of the use of protein-based plant extracts	It found a CoP to help develop a strategy to approach this larger food producer. With the support from a university's hub, it re-evaluated its target markets, provided a market intelligence and insight report, and further in curricula projects for the university's postgraduates.	Getting these food startups to adopt the new plant-based protein extract. ¹ Identifying other opportunities for own-branded products e.g. substitute milk. ²	Develop new markets and increase the share of its existing protein-extract markets. ⁴ Analyser ⁵	Getting agri-food production companies to be more mindful about the processes used to get this protein extract. ¹ Become a knowledge and expert source for other food protein plant extraction startups ³	Developing the business model value proposition that focuses on the environmental impact of other protein extraction methods. ⁴ Prospector ⁵

Enterprise VII Changing production methods and processes to meet consumption needs and market conditions	It needs knowledge and experience support to improve technology and improve productivity while maintaining good product quality and reducing costs. The company has received consultation from universities' researchers and CoP and has invested in improving production technology and productivity, thus its revenue has grown well.	Applying high technology in the field of fresh vegetable production ¹ Developing fully-field tested products, and developing sales channels for commercialization of fresh vegetables ²	Developing new markets, targeting a group of middle-class customers who want to use fresh products. ⁴ Analyser ⁵	Problems of supply chain disruption and increase in input prices due to the Covid-19. ¹ Becoming an expert in applying hydroponics and automatic environment control system. ³	Trying to save costs and apply technological improvements to increase labor productivity. ⁴ Prospector ⁵
Enterprise VIII Changing production methods and processes to ensure stable and quality supply, to meet consumption needs and market conditions	It found CoP to build a team of qualified and experienced technicians who help manage the farming environment and carry out disease prevention for fish periodically and strictly in accordance with the standard process.	How to apply high technology in the organic seafood production Improving production process and technology; developing sales channels for distant market ²	Developing supply, improve distribution system, and attracting new customers. ⁴ Prospector ⁵	Problems of supply chain disruption and increase in input prices due to the Covid-19. ¹ Becoming one of a leading market suppliers in the organic seafood market. ³	Trying to reduce costs and apply technological improvements ⁴ Prospector with new comparative advantages ⁵

Notes: ¹ Key challenges; ² Expected impact; ³ Actual impact; ⁴ Key business model; ⁵ Entrepreneurial strategic orientations

Source: The authors' synthesis and analysis.

A comparison between the UK and Vietnamese startups when engaging with informal CoP shows that the main knowledge/expertise outcomes that the UK startups achieved are included: (1) They are having regular meetings with CoP conducted at universities and/or via Microsoft Teams; (2) The Shake programme is highly structured to deliver several key outputs, a market evaluation report, identified skills and competence needs, and a programme of workshops delivering skills training in both technical and business toolkits. As they are both new in the market, they expect to have more support from CoPs, not only in technology knowledge transfer but also in continuing to penetrate and develop their potential markets.

Relating to the two Vietnamese cases, Enterprise VII has received important support from CoP during a quite long period of its five-year operation right at its the starting point: (1) Regular meetings are conducted with universities specialized in science and agriculture to exchange the knowledge of how to apply high-tech to agriculture production. Researchers, lecturers, and students are invited to participate in the company's R&D activities and technology transfer projects. Internal trainings have been frequently updated for the company's staff; (2) Joining social networks. The enterprise expects in the short term to conduct knowledge and experience exchange activities on a regular and continuous basis to enhance the development of all the joined parties. In the longer term, these CoP should be developed in a more selective way with the participants to minimize those who may affect its goals and development. With enterprise VII, it has participated in a business community network and several business forums for the exchange of practices, experiences, and tools. However, the role of universities and research institutes is still limited in those groups. The company also has contacted scientists in the agricultural field and technological experts and economists for consultations related to cultivation, production processes and measures to adapt to changes in the business environment.

Ultimately, entrepreneurs' mindset and their deep cognitive structures, and how they perceive and their behaviour towards opportunities, provides an insight into how business support programmes can best help these nascent entrepreneurs develop their ventures. Agritech enterprises generally start out with a prospector strategy, one based on a technology readiness model, in which they develop their initial product/service. They then look to growing their enterprises' market penetration, to secure sustainable revenue/profit streams and allow for more investment in their R&D. Some startups will then adopt a more conservative position - either attempting to defend their current marketplace, or others may react to changes in the marketplace - sometimes too late. Other agritech startups instead take a more active role; some analyze the marketplace dynamics carefully and change their strategies - first defensive, and then prospective - carefully weigh up the benefits and costs of any change. Prospectors take a more aggressive and proactive stance, continuously searching for new opportunities and ways of challenging the status quo.

5. Conclusion

The forging of links between universities and businesses is viewed as an increasingly important means of stimulating knowledge development that can lead to commercial innovation and to achieve effective knowledge exchange requires the active participation of different kinds of intermediaries. CoP can play an essential role in providing the connection between universities/research institutions and businesses. For both the cases of the UK and Vietnam, in the agriculture sector, many informal groups in the form of CoP have created connections for enterprises to help find new outlets for their products.

This research contributes to the existing literature by giving original insights into CoP and university exchange knowledge benefits to agritech entrepreneurship. The collaborations

have been reported throughout the findings. The formation of CoP and the transformation of knowledge from university and research institutes to an agritech startup is both a temporal and permanent solution for effective collaboration and startup growth development. The case study of eight entrepreneurial startups in both the UK and Vietnam illustrates the huge benefits startups experience whilst benefitting from the

large pool of resources, expertise and advise open to them.

Our findings also contribute theoretically by improving a business model change framework that both helped explain the need for change and has become a useful tool in making sense for the business entrepreneurs' mindset towards making these changes, and thus help them in quantifying the impact on future business growth.

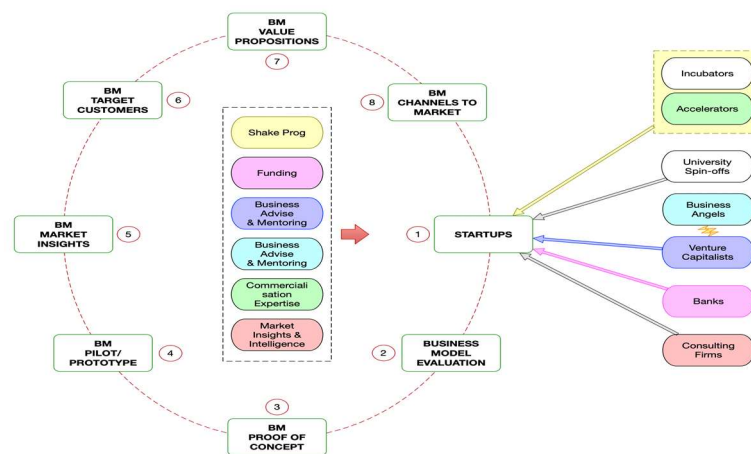


Figure 3: Business Model Change Framework (Evolving Cognitive Model)

Source: The authors' development.

The business model change framework (see Figure 3) was developed out of the careful analysis of these case studies. The key components of this model are:

1. Business startup: The entrepreneur could readily describe what the main premise was for his start-up, what the market was, what he would deliver and how they would make money from it.

2. Business model evaluation: This helps explain the business processes set up to deliver to the initial mindset business model.

3. Proof of concept: A strategic plan identifies the principal strategic markets targeted, with detailed information about products and services delivered, and the expected revenue and profit streams resulting. In less formal enterprises this is still evident by the sales/marketing forecasts produced for each year.

4. Pilot/prototyping: Small changes are often evident in the business model as the enterprise reacts to customer/competitor changes, and/or initiates innovations to their products/services.

5. Market insights: More dramatic changes in the product market stimulates some more dramatic changes to the product strategy - a next generation product line to help re-position the product or service.

6. Target customers: Re-evaluating the target customer segments to identify ways to increase the customer base in both the short and medium-term.

7. Value propositions: Re-positioning the product/service requires a closer matching of the product/service propositions to the target customer needs and wants.

8. Channels to market: This is where product innovation alone cannot address the external environmental threats and/or opportunities. Companies need help in understanding where their target customer purchases their products/services - and the linked knowledge/expertise they need with it.

The business change model framework and its corresponding Osterwalder Business Model Canvas toolset helps all enterprises understand

the important link between environmental threats and opportunities, their sensemaking of the potential changes needed in their business model, and the practical issues of then implementing these changes. Yet successful collaboration is largely down to the individuals involved having an investment in the success of the overall CoP. To better understand the challenges and issues likely to affect the success or otherwise of the partnership, the researchers undertook a careful evaluation of the business entrepreneurs' motivations and expectations of the informal CoP, and their impact on their business model.

The limitations of this case study are firstly that the number of cases researched is quite limited with six startups in the UK and only two cases in Vietnam. The second limitation is related to the depth and detail of the support from universities and research institutes on each of the phases of the startup. It is possible and desirable to break these down further, and future research might want to consider this to create further measures to enhance the relationships. However, the aim of this research is to quickly assess the areas of strengths and weaknesses within the businesses and identify those aspects of the ecosystem/CoP/university and research institutes knowledge exchange.

References

- [1] Great Britain & Northern Ireland, "Agritech Agritech Sector. 1," 2021, https://www.great.gov.uk/international/content/about-uk/industries/agricultural-technology/?_gl=1*sne02r*_ga*mtc1nzezntgwn c4xnji0nti4mdy5*_ga_6h60rml3pl*mtyynduyoda 2os4xljaumtyynduyoda3ny4w (Accessed March 14, 2021).
- [2] Innovate UK, "Agritech Agritech Centres," 2021, <https://www.agri-techcentres.com/contact> (Accessed March 14, 2021).
- [3] AgFunder Network Partners, "Agri-FoodTech in Europe boomed in 2019, with funding up 70% Year on Year. What's in store for 2020," 2020, <https://agfundernews.com/agri-foodtech-in-europe-boomed-in-2019-with-funding-up-70-yoy-whats-in-store-for-2020.html> (Accessed June 14, 2020).
- [4] Nnamdi O. Madichie, Bolat, E., & Taura, N., "Digital Transformation in Wets Africa: A Two Country, Two Sector Analysis," *Journal of Enterprising Communities: People and Places in the Global Economy*, 15 (2) (2021) 15.
- [5] De-Graft Johnson Dei, & Walt, T. B. v. d., "Knowledge Management Practices in Universities: The Role of Communities of Practice," *Social Science & Humanities Open*, 2 (1) (2020) 15.
- [6] Dalkir, K., *Knowledge Management in Theory and Practice*, Elsevier Butterworth Heinemann: Amsterdam, London, 2005.
- [7] Wenger, E., "Communities of Practice: A Brief Introduction," 2006, <http://www.ewenger.com/theory/index.htm> (Accessed June 14, 2020).
- [8] Wenger, E., McDermott, R. & Synder, W., *Cultivating Communities of Practice*, Havard Business School Press Boston, Massachussets, 2002.
- [9] Yusuf, S., "Intermediating Knowledge Exchange between Universities and Businesses," *Research Policy*, 37 (8) (2008) 1167-1174.
- [10] Brown, C. J. & Proudlove D., "Tri-partnerships in Knowledge Transfer: Changing Entrepreneurial Mindsets," Innovation KT conference, <https://uhra.herts.ac.uk/handle/2299/25354> (Accessed June 14, 2020).
- [11] Müller, C., "Change of Business Models and the Role of the Business Ecosystem: Creating Flexibility in Business Models by Companies in Hightechnology Industries," Dissertation, Graz University of Technology, 2014.
- [12] Osterwalder, A., Pigneur, Y., Smith, A., & Etienneble, F., *The Invincible Company*, Hoboken, New Jersey, USA: John Wiley & Sons, 2020.
- [13] Kang, K. H., & Kang, J., "How Do Firms Source External Knowledge for Innovation? Analysing Effects of Different Knowledge Sourcing Methods," *International Journal of Innovation Management*, 13 (1) (2009) 1-17.
- [14] Mark S., Lewis, P., & Thornhill, A., "Chapter 4: Understanding Research Philosophy and Approaches to Theory Development," *Research Methods for Business Students*, 2019, 128-171.
- [15] Probst, G., & Borzillo, S., "Why Communities of Practice Succeed and Why They Fail," *European Management Journal*, 26 (5) (2008) 335-347.
- [16] Lara Carminati, "Generalizability in Qualitative Research: A Tale of Two Traditions," *Qualitative Health Research*, 28 (13) (2018).