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RESEARCH ARTICLE

THE ROLE OF SUPPORT ORGANISATIONS IN PROMOTING ORGANIC FARMING INNOVATIONS AND SUSTAINABILITY

Ndlovu Wiseman^a, Sabine Moebs^b, Marizvikuru Mwale^a, Jethro Zuwarimwe^a^aInstitute for Rural Development, P. Bag X5050, University of Venda, Thohoyandou, South Africa^bDigital Business Management & International Business, Duale Hochschule Baden-Wuerttemberg Heidenheim, Germany*Corresponding Author E-mail: wiseman.ndlovu@outlook.com

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ABSTRACT

Innovation is a product of collaborative effort and processes that make use of the expertise of and involves multiple stakeholders in its engineering. Most current studies focus on challenges, opportunities, and strategies for innovation. However, the role of support organisations and their specific innovative practices that foster sustainability in organic farming remain scantily researched and unknown. This study investigated innovative practices emanating from collaboration between support organisations/groups and farmers. Also, the question on how these practices influence the sustainability of organic farming was answered. A cross-sectional explorative research design was applied to collect data through semi-structured questions using interviews and focus groups in Bavaria and Baden-Wuerttemberg federal states, Germany. Innovative practices were performed at three key organisational levels namely; compliance with organic farming standards; production processes as well as marketing and consumer engagement. The findings revealed that collaborative innovative practices by support organisations/groups at the market and consumer engagement level was greater compared to other levels. The importance of innovative practices varied across the four dimensions (environmental, social, political, and economic) of organic farming sustainability. Organic farming innovations must be enhanced to improve the organic farming situation like improving area productivity, balancing for environmental friendly and safer agricultural practices as well as food security.

KEYWORDS

Farmer organisations, innovation, organic farming innovation, support groups/organisations, sustainable agriculture.

1. INTRODUCTION

Organic farming is nature friendly and classified as a sustainable agricultural practice. It has the potential to reduce the environmental damage by modern conventional farming practices (Smith *et al.*, 2019). However, current trends and challenges, like increasing consumer demand, organic seed production and weed management challenges, fragmented supply chain development, land area productivity limitations, and regional adaptation constraints threatens the future success of the organic sector (Jouzi *et al.*, 2017). These challenges hinder the realisation of organic farming innovations (OFIs) and sustainability (Nedumaran, 2020). This requires that different stakeholders support continuous adaptation and adoption of innovative farming practices and processes. OFIs are a critical component for the survival of organic farming, ensuring supply of healthy food, as well as reducing carbon footprint and environmental degradation. Although studies support that innovation requires the involvement of all stakeholders, fewer studies have investigated the role of different support groups/organisations in promoting OFIs. Current studies focus on challenges, importance, opportunities, promotion, the need for and strategies of OFIs (Canali, *et al.*, 2020; Clark, 2020; Zagata *et al.*, 2020).

Padel *et al.* (2015) for example researched the roles of different

stakeholders in supporting innovation, but only focused on farmers, researchers, and knowledge exchange for innovation. Some focused mainly on product, process, or technological innovation (Niggli *et al.*, 2017). In the reviewed literature, social aspects, as well as the role of these organisations in the diffusion and adaptation of OFIs, is scanty (Bokelmann *et al.*, 2012). Studies show that OFIs are a product of a functioning entire support system (Håring *et al.*, 2012). Hence, the innovative practices that emanate from collaborative activities between support groups/organisations and organic farmers were investigated in the present study. The study demonstrates how different support organisations at different levels collaborate with farmers to achieve OFIs. In addition, the study illustrates how innovative practices promote social, economic, political, and environmental organic sustainability.

2. BACKGROUND TO THE STUDY

It is expensive due to increased labour expenses for monitoring and weeding, to produce organic products unlike in conventional farming (Jouzi *et al.*, 2017). Organic farming requires a greater deal of managerial effort (Asadollahpour *et al.*, 2014; Tiraeyari *et al.*, 2017). Moreover, low yields per hectare are reported and stringent regulations present a hurdle for farmers intending to convert to organic farming. For instance, a farmer

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needs three years of yearly certification to qualify. Marsh *et al.* (2017) add that limited organic farming knowledge is another major setback for most farmers. The consensus that adopting innovation and its diffusion is key to improving the attraction and sustainability of organic farming, requires that stakeholder-specific innovative practices are known and understood. This necessitates that support organisations' practices that promote OFIs are identified for improved and precise decision-making by different stakeholders in the entire organic supply chain (Food and Agriculture Organisation, 2018).

Innovation is an outcome of collaborative efforts rather than the outcome of a single entity (Bouncken, 2011; Soosay *et al.*, 2008). OFI results in new production systems or processes technologies, structures, plans, and programmes about organic farming (Damanpour, 1991: 694). Collaboration dismantles barriers to learning, as well as allows better understanding and communication between different stakeholders. As a result, farmers access reliable information that fosters process efficiency and collectively promotes innovativeness across the organic farming supply chain (Bouncken, 2011). Identifying the roles of each player and the level at which they contribute the most adds to the toolkit for managing and diffusion of OFIs. Like other forms of farming, in different regions and countries, organic farming in Germany is supported by different organisations, operating at different levels. They also have different goals, functions, and objectives.

Germany is committed to increasing the number of organic farmers by 2030 to meet consumer and environmental goals. This study was conducted in Germany to identify and assess the innovative practices that emanate from collaborative partnerships between organic farmers and support organisations. Generating knowledge contributes to enhancing creativity in, and support for OFIs. This eases organic farming adaptation through knowledge transfer among key stakeholders (farmers, researchers, practitioners support organisations, and policymakers) and ensures sustainability in the sector. Brzezina *et al.* (2017) recently in Germany found that organic farming challenges among small-scale farmers are a threat to its sustainability. The authors further revealed that the sustainability of the sector cannot solely lie on quick fix growth-oriented options, like subsidies. Rather, anticipating and managing inevitable organic farming limits like low area productivity and market dynamics for example is crucial for sustained OFIs and sustainability.

Most organic farmers in Germany are members of different associations, groups, and farmers' organisations that serve their interests. Apart from Bioland and Demeter (the largest and oldest organic associations), Naturland, Biokreis, Bundesverband Ökologischer Weinbau (Federation for Organic Viticulture, ECOVIN; Gäa; Ecoland; Biopark; and Verbund Ökohöfe are some of the old organic organisations. There are also other independent farmer organisations while some are funded by the government. The federal government's support to these organisations is in line with the EU resolutions of absorbing higher costs associated with the transition from conventional to organic farming by conversion incentives (European Union, 2017). It is expected that they reduce transactionally; information; bargaining and decision making; and monitoring and enforcement costs, thus creating a conducive environment for the diffusion of OFIs (Coase, 1992; Dahlman, 1979). In the last decade, Brenes Muñoz, Lakner, & Brümmer (2011) found that a high level of affiliation to support organisations or producer associations was a key factor for the success of organic farming in Germany.

The organic farming sector continues to grow with an estimated growth of over 50% in the last decade (Hamm *et al.*, 2017; Federal Ministry of Food and Agriculture, 2021). Currently, this represents half of the total targeted arable land of 20% to be converted to organic by 2030 (Federal Ministry of Food and Agriculture, 2021). The growth in the sector is also influenced by consumer demand and increasing awareness about environmental protection. For example, amid Corona global pandemic, the organic market still grew by 22.3 % representing 14.99 billion EUR and this is approximately 6.4 % of the organic share on the food market (Ami, 2021). Moreover, a recent Nutrition Report by the Federal Ministry of Food and Agriculture (2021) shows that every second person looks out for the Bio-Siegel (organic certified products) when shopping. To meet these targets and growing demand, strengthening support structures and enhancing innovation is essential (de Paula *et al.*, 2019). For this reason, this study evaluated the collaborative role played by support organisations and groups with farmers in inculcating OFIs and sustainability. Specifically, the following questions are answered.

- Which support organisations are involved with farmers that promote OFIs?
- What are the innovative practices distributed within the organic farming sector that come from the process of collaboration?
- What is the impact of such innovative practices in improving the sustainability of organic farming?

3. METHODOLOGY AND MATERIALS

3.1 Study area and population

This study was conducted in the federal states of Bavaria and Baden-Wuerttemberg, Germany. These states have the highest number of organic farms and produce (Federal Statistical Office, 2017) in Germany, comparatively. For example, Baden-Wuerttemberg has a total of 39 820 farms while Bavaria has 88 150. In terms of organic area and the total number of producing farms, Bavaria has 314 182 ha and 9,093 (30.4%) while Baden-Wuerttemberg has 165 640 ha and 8,649 (29.4%), respectively (Federal Statistical Office, 2017). The study population included snowballed organic farmers, regional government's department of agriculture representatives, organic farming consultants as well as support organisations. Firstly, a farmer was identified and referral of a farmer, support organisations representative or consultant readily available was sought thereafter. Also, experts were consulted as key informants. Combining different set of population categories helped complete the triangulation of results ensuring their validity and reliability.

3.2 Data collection

Data was collected from the 11th June to the 28th July 2019. The OFIs were assessed using semi-structured questions through face-to-face (n =11) and telephonic (n = 3) interviews as well as two focus group discussions. Each group had 4 and 5 members randomly constituted. Focus groups were conveniently composed and were based on the coincidence of farmers' meetings during data collection visitations. All interviews were carried out directly on the farms in the Fall, except for 3 that were conducted telephonically. A translator to and from English to the native German language was utilized for a better understanding of the issues discussed. The purpose of the study and the rights of the respondents such as voluntary participation was explained to the respondents. Thereafter, respondents were asked to give their consent to participate before the interview session.

3.3 Data analysis

Data collected were analysed into two phases. Firstly, the data was thematically analysed with the aid of Atlas Ti version 8.1.4. This was done to identify organisations or groups involved in supporting farmers and their associated activities perceived to promote innovation. Also, the software was utilised to link a family of codes and establish the relationship between issues using the network diagram (McKether & Friese, 2016). Secondly, a framework of classification of innovative practices by Krishnan *et al.* (2021) was adapted to unpack and explain the roles of support organisations or groups and how they collaborate with farmers to support and promote innovation in the organic sector.

4. RESULTS AND DISCUSSIONS

4.1 Demographic profile of respondents

Twenty-three (23) agricultural support experts, farmers, and support organisation representatives participated in the study. Males (69.6%) were the most represented similar with the age group of between 41 and 60 years (65.2%) as illustrated in Table 1. Moreover, most information was provided by farmers (39.1%) compared to other groups to understand the impact of the studied organisations on the farm level. Participating farmers were involved in crop and animal production. Specifically, those in animal production practiced poultry, cattle, goat, and pig rearing. On the other hand, crop producers focused on vines, wheat, and horticultural produce such as potatoes, tomatoes, and cucumber. As observed during the study, farmers who practiced animal production were also involved in crop production, however, on a limited scale.

Table 1: Cross-sectional study demographic information of the participants (N = 23).

Item	Category	Frequencies (%)
Gender	Female	7 (30.4%)
	Male	16 (69.6%)
Age	21 and 30 years	2 (9.0%)
	31 to 40 years	3 (13.0%)
	41 to 50 years	7 (30.4%)
	51 to 60 years	8 (34.8%)
	61 years and above	3 (13.0%)
Region	Bavaria	14 (60.9%)
	Baden-Wuerttemberg	9 (39.1%)
Respondents type	Agricultural support experts	
	Farmers	2 (9.0%)
	Organic farming consultancy	9 (39.1%)
	Farmer organisations	2 (9.0%)
	Lobby organisation	3 (13.0%)
	Regional Government: Department of Agriculture	2 (9.0%)
		1 (4.0%)

4.2 Collaborative Organic Farming Innovations (Support Organisations and Farmers)

The analysis of literature and collected data shows that there are three types of support organisation among organic farmers. These are farmer organisations, lobby groups, and organic farming consultancies. Different innovative practices and contributions by each organisation were therefore categorised accordingly (Table 2). These innovative practices are further categorised per the level at which they are performed. A model for the classification of innovative practices for sustainability by Krishnan et al. (2021) is used to illustrate how the collaborative practices between

support organisations and farmers ensured organic sector sustainability.

Figure 1 illustrates the different innovative practices arising out of the support organisations' collaboration under each level of contribution as illustrated in Table 2. The contribution levels are: production processes; marketing and consumer engagement; as well as compliance and organic farming standards were data-driven as opposed to the original model where levels were based on the supply chain processes that are plan, make, source, deliver and return. Codes such as PC2 represent innovative practices at the level of production processes by private consultancy organisations whereas LG3 represents innovative practices at the level of compliance and organic farming standards. Similarly, marketing and consumer engagement are considered. The model has three hierarchical phases used to classify OFIs emanating from collaborative practices. The first phase of the business model shows the foundation for sustainable OFIs and links for organisations, farmers, and consumers. This phase illustrates that there must be an uninterrupted and swift exchange of information among organisations, farmers, and consumers. This forms the basis for achieving OFIs. In the second innovative phase, different support groups and organisations synthesize, gather, use and adapt the existing practices and available information. It is at this stage where organisations and support groups demonstrate their innovative practices.

Different innovative practices by each organisation are classified according to the different levels at which they are performed. It is worth noting that, unlike the original model, political sustainability was added based on the present analysis. The next section discusses the different innovative practices according to types of support organisations based on the empirical evidence and supported by the literature. Thereafter, the sustainability of OFIs is outlined, and conclusions are given.

Table 2: Innovative practices from the collaboration between organic farmers and support organisations in Baden-Wuerttemberg and the Bavarian States, Germany

CONTRIBUTION LEVEL	PRIVATE CONSULTANCIES (PC)	FARMER ORGANISATIONS (FO)	LOBBY GROUPS (LG)
Compliance and Setting Organic Farming Standards	<ul style="list-style-type: none"> • Continuous flow and transparency of information (PC1) • Crop and animal breeds variety selection strategies (PC2) 	<ul style="list-style-type: none"> • Information exchange and sharing (FO1) • Crop and animal breeds variety selection strategies (FO2) 	<ul style="list-style-type: none"> • Information sharing (Specifying EU regulations) (LG1) • Political representation (LG2) • Policy alignment at EU and national contributions (LG3) • Environmental protection awareness (LG4)
Production processes	<ul style="list-style-type: none"> • Crop and animal breeds variety selection strategies (PC3) • Distribute and share information on best organic farming practices (PC4) • Training farmers on best organic farming practices (PC5) • Adaptation of varieties and animal breeds through on and off-farm research activities (PC6) • Special events meeting for knowledge exchange among farmers and between farmers with experts (PC7) • Promote site-adapted land management (manure production and preparation, sustainable tillage practices) (PC8) 	<ul style="list-style-type: none"> • Knowledge sharing (consumer information, retailer expectations, research output, general information) (FO3) • On-farm research activities (FO4) • Crops and animal breeds variety selection strategies (FO5) • Promote site-adapted land management (manure production and preparation, sustainable tillage practices) (FO6) • Special events meeting for knowledge exchange among farmers and between farmers with experts (FO7) 	<ul style="list-style-type: none"> • No Evidence
Marketing and Consumer Engagement	<ul style="list-style-type: none"> • Consumer-farmer meetings (PC9) • Farmer-schools' engagement programmes (PC10) • Retail space advocacy (PC11) • Advocacy for regional organics produce (PC12) • Warehousing and bulk buying from farmers (PC13) • Labelling and branding on behalf of farmers (PC14) • Market search and research (PC15) • Providing a warehouse and ready market for farmer produce (PC16) • Networking opportunities for collaborative marketing (farmer-farmer; farmer-expert and retailer-farmer meetings) (PC17) 	<ul style="list-style-type: none"> • Developing marketing strategies (FO8) • Group and collaborative marketing (FO9) • Market research (FO10) • Encourage processing and marketing of organic produce (FO11) • Retail space advocacy (FO12) • Networking opportunities for collaborative marketing (farmer-farmer; farmer-expert and retailer-farmer meetings) (FO13) 	<ul style="list-style-type: none"> • No evidence

Key: PC = private consultancy organisations; LG = lobby groups; FO = farmer organisations

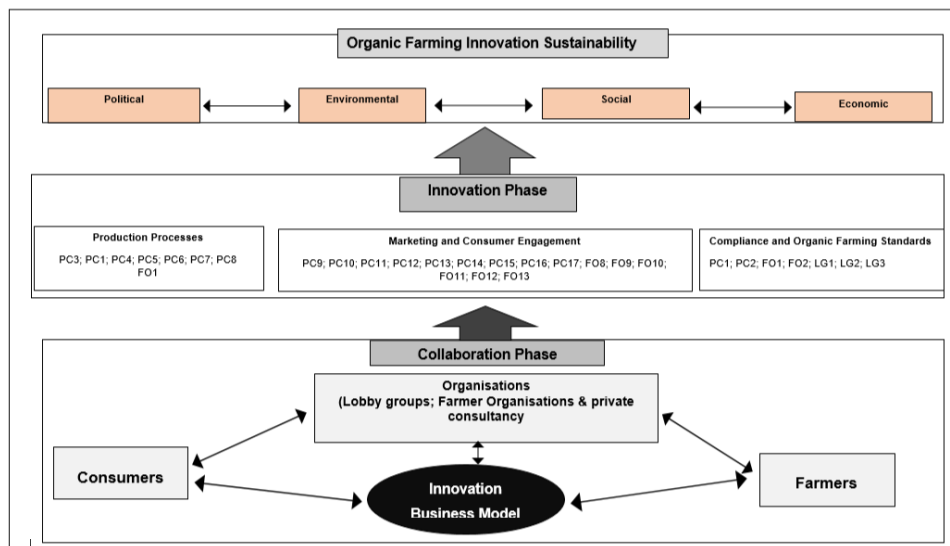


Figure 1: A framework of classification of innovative practices. Source: Krishnan et al. (2021)

4.2.1 Lobby organisations

Lobby organisations’ innovative practices include information sharing, political representation, and policy alignment. These practices were performed at the level of compliance and setting standards for organic farming by representing farmer’s unique needs and adapting policies at the regional, national, and EU levels. Direct contact with farmers, interactive meetings, and research initiatives on farmers’ challenges helped these organizations capture, communicate, and represent farmers’ needs in policy adaptation. These organisations shared farmer’s expectations in organic farming through publications and representation in local organic farming policy adaptation and implementation. To illustrate this, one crop producer in Bavaria said, “... both organizations and farmers try to influence decisions (organic) in the community. In Bavaria, there is a separate officer who does lobby work for us. Who collects farmer’s challenges and bring them to parliament, the Bavarian parliament”. While being policy brokers was also noted as critical, Kingiri, Ann & Andy (2012) explain that this role presents varying opportunities and challenges. For instance, their legitimacy is often challenged mainly because of potential conflicts with governments, and market actors. Furthermore, their local position may provide insufficient clout for developing long-lasting relationships with relevant actors. This fuelled the generally held view by farmers that these organizations “do nothing” when it comes to representing their needs. Despite, these sentiments, the role of local lobby organic organizations has gained recognition in the European Commission policy level for dedicated innovation platforms and for advocating for farmer-first models for participatory research (Delate et al., 2017).

Although farmers, had reservations about the importance of this practice by lobby organisations, evidence shows that it stabilised conditions and levelled the playing field for organic farmers including its support systems. For instance, a cattle farmer from Baden-Wuerttemberg, came to learn and understand the importance of lobby organisations after a visit to Brussels offices at the EU parliament. The farmer said, “Now, I have a very good look at their lobby role after this first quarter of the year because I was there in Brussels. I talked to people, how they work, they showed me what goes on there. In my opinion, after that, I say it is important what they do because if they did not do it, it will be more difficult for farmers than it is now”. Similarly, Yang et al. (2014) in China stated that such organizations act as systemic intermediaries that take the role of the coordinator in the service systems by bridging the gap between the research, policy systems, and everyday farming practice. Furthermore, a 30 years’ reflection on organic farming by Youngberg & DeMuth (2013) strongly indicates that lobbying and advocacy activities contributed not only to organic agriculture evolution but emerged along with this altered favourable policy environment in the USA. Thus, its advocacy work practices by these organizations play an important role in shaping, not only the path of organic agriculture but also the overall politics of organic agriculture. There was no evidence of innovative practices from lobby organisations that exist at the level of production processes and marketing and consumer engagement.

4.2.2 Farmer organisations

Farmer organisations performed varied innovative practices in all three dimensions of contributions. Like lobby groups and organisations, these organisations ensured a seamless and continuous flow of information about the farming standards and assisted farmers on how to comply with EU and regional organic farming standards. Also, at the production processes level key innovative practice farmer organisations involved the creation of interface meetings among farmers as well as between farmers and different categories of experts. Specifically, specialists in climate variability adaptation, extension services, and organic farming specialists were invited by these organisations at different stages of production to share information and discuss farmer challenges. Evidence from, Cameroon (Mbangari & Fonteh, 2020); Tanzania (Aku et al., 2018); Rwanda (Aboniyo & Mourand, 2017) as well as in United States of America and Italy (Delate et al., 2017), support that for innovation to take place, collaborative information production through research and timely sharing is critical for farmers’ resilience.

A farming consultant in Baden-Wuerttemberg said, “With all the farmers, we have met only one time ... There are also, “let’s meet meetings” for specific groups, for example, meat, so far we have met three times now...” These meetings will normally result in farmers working together or with experts to address the immediate production challenges. For example, collaborative marketing was a product of farmer meetings. A beef farmer in the Baden-Wuerttemberg who is a member of a newly formed farmer organization said, “... during our meetings we found that farmers want to sell organic meat in the area. So, the farmers came together and it contributed to the formation of this organization”. Furthermore, farmer organisations and consultancies were also actively involved in promoting organic farming using funding obtained at the government level. In support of this, a representative from a local organization in the state of Baden-Wuerttemberg said, “There are funds available which you can apply for as a community, as the region. You write a concept or project of what you want to do to strengthen organic agriculture in your region. ... the money covers the administrative costs of the organization”.

4.2.3 Consultancy organisations

The innovative practices of consultancies organisations were varied and vast compared to other categories. These organisations contributed the most to the production processes and marketing of organic farm produce. At the production level, organisations fostered innovativeness among farmers through crop and seed variety selection strategies; sharing production-related information and best organic farming practices. A key feature that fostered innovation was sharing of relevant information at different stages of the production process. This was highlighted by a vineyard consultant in Bavaria who stated that. “... from April to August we have at first, the growers’ information, what is to spray, about the plant, soil information, and what seeds to plant. August to September, we ...look for the quality of the grapes. ... acid, moisture, Collected information [from different farmers] is also distributed in the community of farmers”. ...

farmers make their measurements". In support of this, a horticultural farmer in Bavaria also hinted at the importance of organisational practices in promoting innovation and survival of their farming operations. "... since 1999, we are glad we joined this organization [name given]. They are ... good for information transfer. They send ..., a specialist come to the farm to observe my potato and tomato. He identifies problems I would not normally see". Training farmers on best organic farming practices and promoting site-adapted land management (manure production and preparation, sustainable tillage practices) were major innovative practices by consultancies that fostered sustainability in the organic sector.

Adaptation of crop and animal breed varieties through on and off-farm research activities also emerged as a key theme that promoted innovation and sustainability in the sector. Like the findings of this study, Hellin & Camacho (2017) pointed out that to successfully innovate in organic farming, research activities must be site-based and involve a degree of task sharing between researchers and farmers. "We work with farmers a lot ... we have a group of farmers; we meet once every month to learn. We visit one farm and have different themes, or subjects [to discuss]. For example, today in the evening we will go to an organic farm and we have organically produced seeds for oats. We look at how these organically produced seeds are growing" a consultant in the state of Bavaria said. Also, brainstorming sections facilitated by these organisations was a crucial feature for innovation that facilitated the adaptation and survival of organic farming. "With the farmers, we do round-table discussions where farmers are invited based on the subject matter. For example, lately, our focus is on the matter of baby goat meat in the effort to make a special organic dish from the baby. Because in Germany, most of the organic goat from milk production is sold abroad. There is uncertainty whether this will be possible in the future, if there is no market for goats in German itself producers will get into problems because it will be difficult to sell their goats" a farmer in Nuremberg, state of Bavaria stated.

Like the farmer organisations, consultancy organisations' innovative practices were also visible in marketing and consumer engagement. Awareness campaigns, interface meetings between farmers and consumers, shelf space advocacy, and publications about the importance of organic products in different platforms were the main contributions to OFIs. The organisations brought consumers and farmers together and explained to the consumer why they should buy organically produced regional products. These findings are also supported by Delate *et al.* (2017) and Ihnatenko & Novak (2018) who argued that linking farmers and the public was an innovative practice that enhances sustainability among farmers.

Furthermore, to ensure the sustainability of the organic sector, the organisations invested in the future markets. For example, a consultant practicing since the year 1990 and serving as a board member in one of the organizations in the Bavarian state, said they had established an ongoing schools program where learners interact with organic farmers to learn about the importance of organic products and environmental protection. Also, farmer meetings were other forms of marketing innovation. A cattle farmer in Baden-Wuerttemberg echoed these sentiments and said "In these farmers' meetings, it is not only just farmers, there are people from the restaurants, and others, they are also there. You get connected with butchers, so you are not just in this one specific group of farmers". Local retailers and shops are approached and encouraged to stock and sell regional produced organic products. Through tagging and branding locally produced organic products with the organisation's logo from member farmers is an example of how innovation in marketing manifested. Using the organisation's logo on organic products, enabled the organisations to know which supermarkets stocked their organic products from the region and which ones did not. Armed with this information, local supermarkets are approached and an attempt is made to market farmers' products and has them included on their shelves. The results of the study concur with Hao *et al.* (2018) in China among apple farmers as well as studies by Jitmun & Kuwornu (2019) in Thailand and Forney & Haberli (2017) in Switzerland among the dairy farmers that support organisations play a critical role in marketing innovation.

4.3 Innovative Practices and Sustainability of Organic Farming

Figure 2 is an extract from Figure 1 that shows the analysis of how different innovative practices contribute to the sustainability of OFIs. The results suggest that innovative practices from the marketing and

consumer engagement influence the social, economic, and political sustainability while practices in production processes were more relevant to economic and environmental sustainability. For example, farmer-school engagement programmes facilitated by farmer organisations create awareness to children about the importance of environmental protection and organic farming. In this way, the future organic markets are secured for example. Innovative practices identified in this study, illustrate how sustainability can be achieved at different levels of OFIs contribution by different stakeholders. The framework of the study is adapted based on the empirical findings from the participants. Earlier, in Bavaria and Baden-Wuerttemberg (Brenes Muñoz *et al.*, 2011) found that direct marketing, significantly influenced farm growth suggesting that marketing contributes to the economic sustainability of organic farming. Moreover, the study revealed that less efficient farms grew faster than more efficient ones. This might indicate that while increasing farm productivity is part of the organic farming sustainability cocktail, natural processes and environmental concerns should be factored in the process. These findings emphasize the revelation by Brzezina *et al.* (2017) that growth-driven support approaches to organic farming have unintended consequences. Hence, OFI processes aimed at increasing productivity in the sector should be anticipated and managed within the limits of organic production. From Figures 1 and 2 it is possible to identify the organisations and know at which level of the OFIs they are more relevant. Also, the innovation gap can easily be identified through a process of innovation. It is also evident from the figure that the number of innovative practices occurring at the market and consumer engagement is greater compared to all the other levels. The framework highlights the roles of farmer organisations in the collaborative promotion of OFIs.

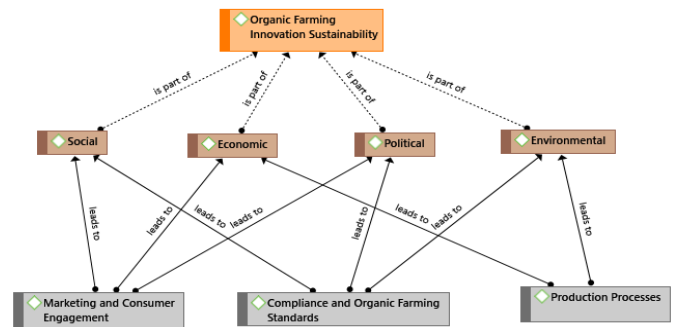


Figure 1: Organic Farming Innovation Sustainability. Source: Atlas Ti software

5. CONCLUSIONS

The study investigated and identified the roles of support groups and organizations towards achieving OFIs and sustainability. There are three categories of support organisations namely, lobby groups, farmer organisations, and private consultancies. The role of these organisations occurs at different levels namely: compliant and setting organic farming standards; production processes; and marketing and consumer engagement. The analysis suggested that farmer organisations and consultancies contribute the most in promoting OFIs. These innovations include facilitating access to resources such as knowledge, finance, emotional support, and capacity building. Joint activities of farmers and organisations such as on-farm research activities emerged as critical in fostering OFIs. Moreover, while farmer organisations and consultancies contributed significantly to the economic, environmental, and social aspects of organic farming sustainability, lobby organisations are more effective in environmental and political aspects. For example, innovative practices from collaboration between farmers and farmer organisations resulted in site-adapted land management (manure production and preparation, sustainable tillage practices). While collaboration between farmers and consultancies led to improved marketing innovations such as collective labelling and branding on behalf of farmers as well as retail shelf space advocacy. The identified OFIs contribute to problem solving and offer tools that could be used to increase effectiveness, efficiency, and productivity in organic farming. Consequently, viability for the environment, plants, animals, and human beings could be improved or achieved. Hence, the OFIs emanating from collaboration between farmers and support organisations at different levels must be enhanced to attain local and scalable solutions for sustainable agricultural practices and regenerative farming. The study recommends that the nature of support

by each group of organisations be further studied to unpack the complex nature OFIs and facilitate their diffusion for organic farming sustainability.

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