The influence of market orientation on innovation attitude and firm innovativeness: a case of agri-food MSMEs in Uganda

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Abstract

Purpose – This study assessed the relationship among market orientation, innovation attitude and firm's innovativeness in the context of agri-food micro, small and medium enterprises (MSMEs) in a developing country context.

Design/methodology/approach – Cross-sectional primary data was collected using structured questionnaires from a sample of 521 agro-food MSMEs in Uganda. Data was analyzed using exploratory factor analysis and structural equation modeling.

Findings – Results showed that interfunctional coordination influences both firm innovativeness and innovation attitude. On the other hand, competitor orientation does not influence innovation attitude, but negatively influences firm innovativeness, while customer orientation does not influence firm innovativeness, but positively influences innovation attitude. Results also confirm the positive influence of innovation attitude on firm innovativeness. These relationships vary by location, size of MSME, type of MSME.

Research limitations/implications – The findings of study this imply that agri-food firms should focus on improving the internal coordination among departments so as to improve both attitude toward innovation and firm's innovativeness.

Originality/value – This study investigates market orientation and innovation in agro-food MSMEs in a development country.

Keywords Agri-food, Micro, Small and medium enterprise, Interfunctional coordination, Competitor orientation, Uganda

Paper type Research paper

1. Introduction

In Uganda, the agriculture sector contributes over 25% of the gross domestic product (UBOS, 2022). In addition to the sectors contribution to GDP, it also has significant contribution to the

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country's employment. Over 70% of the Uganda population are employed in agriculture either directly or indirectly (World Bank, 2021). With its numerous products and diverse value chains, growth in the agricultural sector presents a sustainable strategy for poverty eradication in the country (Christiaensen *et al.*, 2011; Christiaensen and Martin, 2018; Gassner *et al.*, 2019). According to the World Bank, growth in the agricultural sector has the highest poverty reducing effect than any other sector (World Bank, 2007).

This potential of agriculture for development and poverty eradication is widely recognized by the government of Uganda in its pursuit to move the country to a middle-income status. For instance, the National Development Plan (now the third), recognizes and prioritizes the role of agro-industrialization for the country's development (Government of Uganda, 2020). Similarly, the countries vision 2040 also acknowledges the role of agro-industrialization in achieving the vision (Government of Uganda, 2013). With the country's primary agricultural production dominated by smallholder farmers (World Bank, 2018) and agro-industrialization dominated by micro, small and medium enterprises (MSMEs) (UIA, 2016), agricultural growth is thus critical. Attaining this required growth of the agricultural sector requires that firms adopt new technologies and also undertake firm level innovations. Such innovation involves undertaking actions that lead to improvements in products, processes, or business models (Caiazza *et al.*, 2014; Najib and Kiminami, 2011; Aksoy, 2017; Iza and Dentoni, 2020; Ajer *et al.*, 2023). Innovation is especially important in enhancing growth in the presence of increasing competition among the many agro-value chain MSMEs (Devaux *et al.*, 2018; Caiazza *et al.*, 2014). Previous research has demonstrated that innovation undertaken by agro-food actors leads to better performance and sustainable growth of the SMEs (Gellynck *et al.*, 2015; Ho *et al.*, 2018; Kamuri, 2021; Leo *et al.*, 2022).

In order to foster innovation in agri-food value chain, an understanding of the drivers of these innovations is paramount (Ajer *et al.*, 2023). Specifically, an understanding of the role played by a firm's market orientation and attitude on innovation are important given that growth of agro-food MSMEs in Uganda are relatively market driven (Kintu and Venter, 2019; Peter and Cathy, 2015; Eton *et al.*, 2021). Although a number of studies have shown that a firm's market orientation influences its level of innovation (Micheels and Gow, 2008, 2015; Bamfo and Kraa, 2019; Dibrell *et al.*, 2011; Hansen *et al.*, 2006; Yaseen *et al.*, 2018), most of these studies cannot be applied in the context of agri-food sector of Uganda. This is because they were either conducted in the context of developing countries (e.g., Micheels and Gow, 2008, 2015; Dibrell *et al.*, 2011) or in non-agro-based sectors (e.g., Bamfo and Kraa, 2019). This lack of specificity of these studies to the context of many developing countries limits the applicability of such studies in improving innovation of MSMEs in such countries. For instance, most developing country agri-food chain is supplied by the bulk of the smallholder primary producers (Kamara *et al.*, 2019). The innovation profile of developing countries are thus different from that of developed countries, varying significantly across sectors (Damanpour and Wischnevsky, 2006; Crescenzi and Rodríguez-Pose, 2012). This therefore implies that a knowledge void exist on the relationship between market orientation, innovation attitude and firm's innovativeness in the context of developing country agri-food sector. Given this knowledge void, this study was conducted to assess the relationship among market orientation, attitude toward innovation and firm's innovativeness in the context of Uganda agri-food value chain.

2. Literature review and hypotheses

In understanding the relationship between market orientation (MO), innovation attitude and firm's innovativeness in the agri-food value chain of Uganda, this study adopted Narver and Slater's (1990) concept of market orientation. According to them, there are five constructs that make up the MO. These are interfunctional coordination, competitor orientation, customer

orientation, long-term focus, and profitability focus. The MO concept has been applied in several studies to assess firm performance. To date, the several studies conducted on market orientation and performance agree that effects of MO on innovation varies across sectors and in scale (Ho *et al.*, 2018; Sisay *et al.*, 2017; Grunert *et al.*, 2005). Although the MO concept following the MKTOR approach (Narver and Slater, 1990) has several dimensions, each of the different dimensions has a different relationship on innovation and subsequently business performance. Each of the constructs are also moderated by different factors. For instance, Sisay *et al.* (2017) in a study of MO of members of an agricultural cooperative in Ethiopia reported that only how a firm views the customer and how it relates with other chain actors were critical for cooperative members in Ethiopia. Another study in Vietnam, Ho *et al.* (2018) observed no direct relationship between a beef firms focused on the customer and how they relate with other chain actors. In their study, the influence of these two factors (customer orientation and inter-functional coordination) were only indirect through innovation, while competitor orientation, long-term focus and profitability focus were all not significant to both innovation and financial performance. It therefore appears as if innovation plays a critical role in linking MO to performance. In a study by Bamfo and Kraa (2019), the effect of customer orientation, a construct of MO, on performance was only partially indirect; however, interfunctional coordination had full indirect effect on performance of the firms studied, moderated by the level of innovation undertaken. These studies show that, whereas, MO is crucial for a performance, its role in influencing the level of performance largely depends on how MO influences MSME owner's or manager's attitude toward innovation and subsequently firm innovativeness.

In most studies on MO, innovation and business performance, long-term and profitability dimensions usually drop out of the analysis since they fail to meet the minimum reliability for them to be included. This is attributed to the lack of long-term goals of many MSMEs and the sensitivity of the aspects of profits. Many firms either do not have long-term goals, for which they can develop strategies to achieve, or they are comfortable sharing such information with researchers. Similarly, most business firms are not comfortable sharing the strategies on profits with researchers. In most studies on MO, only a handful of studies have reported significant relationship of a firm's competitor orientation on the level of innovation and subsequent performance. This observation can be attributed to of the poor focus on developing strategies against competitors. The implication is that, in the wake of increasing competition faced by agri-food MSMEs, current evidence on how MO influences firm innovation is largely inconclusive. For some sectors, MO has a direct relationship (e.g., franchising industry) with innovation (Lee *et al.*, 2015). For other sectors, indirect relationships are observed and there is need to explore the roles of other factors in the MO-innovation paradigm (Gellynck *et al.*, 2015). In the agro-based MSMEs, the interaction between MO and innovation is poorly understood (Micheels and Gow, 2015; Ho *et al.*, 2018; Kamarulzaman *et al.*, 2023).

Several other studies have shown the significance of MO on innovation. However, they do not disaggregate between the influences of the different dimensions of MO on innovation. For instance, Micheels and Gow (2015) reported the positive significant role played by market orientation on firms' innovativeness without disaggregated information for the different dimensions of MO. Hansen *et al.* (2006) reported the significance of MO on the strategies employed by a firm. With evidence, already showing that the different MO dimensions have differential influence on a firm's level of innovation and innovation activities, this study seeks to examine this relationship in the agro-based MSMEs. Understanding this relationship is key in providing additional evidence to foster agri-food MSME innovation. Specifically, the study is interested in understanding the relationship between innovation attitude and market orientation, and firm innovativeness and MO. This relationship is proposed in the conceptual framework presented in Figure 1. It shows that each of dimensions of market orientation may

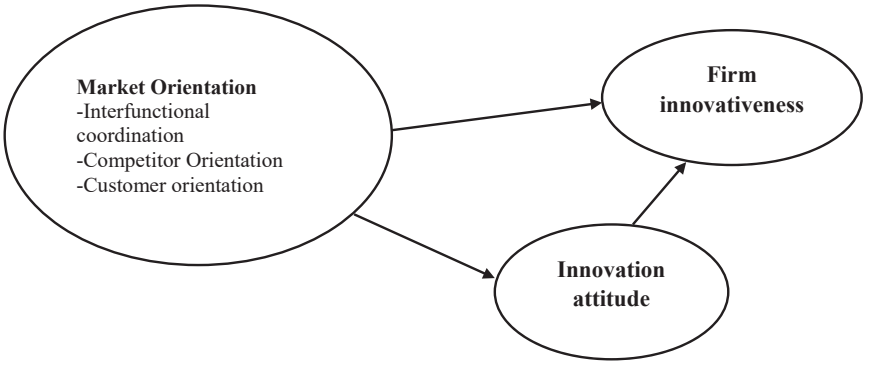

Figure 1.
Conceptual framework

Source(s): Adopted with modification from Ho *et al*. (2018)
Author's own work/creation

influence firm innovativeness either directly or indirectly through their influence on attitude on innovation.

Although Narver and Slater (1990) conceptualized market orientation using five constructs namely; interfunctional coordination, competitor orientation, customer orientation, long-term focus, and profitability focus. This study focused on the first three which are common in MSMEs. Studies of similar firms have also previously focused on the first three (Micheels and Gow, 2008, 2015; Ho *et al.*, 2018). Each of these constructs is expected to influence innovation attitude and firm's innovativeness differently. First, interfunctional coordination which refers how the different units of the firm coordinate (Grinstein, 2008) has been shown to have varying influence on a firm's innovation.

In agri-food MSMEs, this international coordination can be looked at as how the different employees interact so as to achieve the firm's objectives. The level of interfunctional coordination is expected to influence firm's outcomes including innovation (Grinstein, 2008; Ho *et al.*, 2018), innovation attitude (Ho *et al.*, 2018; Micheels and Gow, 2015), and performance (Ho *et al.*, 2018). This study therefore hypothesizes that:

H1a. Interfunctional coordination has a positive effect on innovation attitude

H1b. Interfunctional coordination has a positive effect on firm's innovativeness

The second construct that is expected to influence a firm's innovation attitude and innovativeness is competitor orientation. Competitor which focuses on how the firms view its competitors (Grinstein, 2008) is expected to influence a firm's innovation attitude and innovativesness depending on the firm and the sector. In a study by Newman *et al.* (2016), competitor orientation had a positive influence on innovation. On the other hand, a study by Ho *et al.* (2018) showed that influence of competitor orientation did not influence both innovation and financial performance of beef cattle producers in central Vietnam. This study therefore hypothesizes that:

H2a. Competitor orientation has a positive effect on innovation attitude

H2b. Competitor orientation has a positive effect on firm's innovativeness

The MO concept also includes customer orientation as another construct. Customer satisfaction is very important in the growth of MSMEs. This is especially true in the agri-food sector where repeat customers form the bulk of customers. There are also another set of customer base realized through referrals from satisfied customers. A study by Ho *et al.* (2018)

observed that customer orientation was an important factor for the innovation of beef cattle producers in central Vietnam. Generally, customer orientation is expected to influence different aspects of the firm including innovation (Grinstein, 2008; Fort-Rioche and Ackermann, 2013; Grunert *et al.*, 2005). This study therefore hypothesizes that:

H3a. Customer orientation has a positive effect on innovation attitude

H3b. Customer orientation has a positive effect on firm's innovativeness

In modern agribusinesses, attitude also plays a critical role in the firm's innovativeness. According to Montalvo (2006), innovation in firms is triggered by several factors including the manager's attitude toward various internal and external aspects including economic risk perceptions. The impact of attitude of innovation is expected to vary across sectors and firm sizes (McGuirk *et al.*, 2015; Filippetti, 2011). In relation to this study, it is expected that a positive attitude toward innovation would significantly influence the decision to undertake innovation, and thus the level of innovation. This study therefore hypothesis that:

H4. Innovation attitude has a positive effect on firm's innovativeness

3. Methodology

3.1 Study area

This study was conducted in highly industrialized districts of Kampala, Wakiso, Mukono, and Jinja in Uganda. The selection of the study districts was informed by the concentration of agri-food industries. Kampala was included in the study since it is Uganda's capital city with a high concentration of agri-food MSMEs. Jinja district was included in the study since it also has a high concentration of agri-food MSMEs, being a traditional industrial town. Both Mukono and Wakiso were included in this since they border Kampala, and have seen a rapid rise the concentration of agri-food MSMEs. The agri-food MSMEs located in study districts consist of a wide range of firms including agri-food retailers, processors, wholesales, exporters, and transporters. These businesses have a representation of micro, small and medium firms, with the medium firms dominating.

3.2 Study design, population and sample

In assessing the relationship among market orientation, innovation attitude and innovativeness of agri-food MSMEs in Uganda, this study adopted a cross-sectional approach. The approach was appropriate given that the study was interested in answering the research hypotheses by studying several agri-food firms at one point in time. In operationalizing the cross-sectional design, the study applied quantitative data collection techniques for collecting data on the variables under study. The target respondents were the owners or managers of the agri-food MSMEs, and/or their representatives. The choice of the target respondents was based on the fact that owners and managers are the ones who create a favorable environment for innovation to take place. Secondly, even if staff are innovative, if it is not recognized by management, such innovation would be hard to sustain. Thus, focusing on them would give a better insight into the firm's innovativeness. The study applied the cross-section design to a sample of 521 agri-food MSMEs. For each of the district, a list of registered MSMEs was obtained from Uganda Investments Authority. This list formed the sampling frame. The study was interested in having a rich and diverse respondent in terms of size of MSMEs (micro, small and medium), and the types of business for which they are involved in (retailer, wholesaler, processors, transporters, exporters, and primary producers) across the study location. A representative sample from each of the above diverse subgroups using simple random sampling.

3.3 Measurement, data collection, and analysis

This study used primary data collected from a cross-section of agri-food MSMEs in Uganda. The primary data was collected using semi-structured questionnaires. The questionnaire contained information on agri-food background information and on constructs to measure market orientation, innovation attitude and firm's innovativeness. The questionnaire was administered to the MSME owner or manager. The target was the MSMEs owner. However, given that the managers work closely with the owners, in the absence of the owner, the manager was interviewed. For most MSMEs, the owners also doubled as the managers. Where the owner or manager was not available for the interviews but was willing to participate in the study, they were tasked to nominate a staff member who was interviewed on their behalf. Data collection adopted a digital tool Kobo collect to capture all the responses. Data was collected between November and December, 2021. In measuring the variables under study, firmographic could be measured directly. However, the constructs under study required psychometry for their measurement since they could not be measured directly. Consequently, this study adopted and modified previously used measurements scale for measuring market orientation, innovation attitude, and firm's innovativeness, specifically following the market orientation concept (Narver and Slater, 1990). This concept which is subjective in nature has been widely used in agribusiness (Micheels and Gow, 2008; Ho *et al.*, 2018). In the case of innovation attitude and firm's innovativeness, the study adopted and modified the scales previously used by Gellynck *et al.* (2015), Ho *et al.* (2018), and Micheels and Gow (2008).

In the measurement scales, each of the constructs contained several questionnaire items that were answered on a six-point Likert scale. The study preferred a six-point Likert scale so as to avoid the dilemma of most respondents opting for a middle option, in the event of no clear agreement or disagreement with a given scale item. The data was collected by a team of ten enumerators who all had a background of agribusiness and experience in digital field data collection. Prior to data collection, the enumerators were taken through the questionnaire so that they would acquaint themselves with it. During field data collection, informed consent was obtained from all participants. The data collected was exported to SPSS v.25 and cleaned for errors in coding, before subjecting it to analysis. Data analysis involved use of descriptive statistics and exploratory factor analysis to assess to reliability and validity of constructs, and multivariate analysis using structural equation model (SEM) to test the hypotheses of the study.

4. Results

4.1 Sample characteristics

Table 1 presents the summary statistics for the sample. It shows that over 37% of the agri-food MSMEs included in the study were located in Kampala city. Mukono district had the least number of agri-food MSMEs included in the study. Over two-third of the agri-food MSMEs had annual turnover between 10–100 million Uganda shillings, and could be classified as small firms. Firms with annual turnover of above 100 million UGX were the least and constituted only about 14% of the sample. About 40% of the agri-food MSMEs operated as wholesalers, while others operated as processors (25%), retailers (18%), and transporters or exporters (17%). Over 64% of the agri-food had some of the annual budget allocated to innovation and/or innovation related activities.

4.2 Reliability and validity market orientation, innovation attitude, and firm innovativeness constructs

In order to assess the influence of market orientation on innovativeness and innovation attitude, the reliability and validity of the constructs. Data analysis was performed using

Variable	Category	Percent (n = 521)
District of location	Jinja	13.6
	Kampala	37.4
	Mukono	13.2
	Wakiso	35.7
Annual Turnover (Size of MSME)	Below 10 million	18.0
	10–100 million	67.9
	101–360 million	11.5
	Above 360 million	2.5
Type of MSME	Retailer	17.7
	Wholesales	39.9
	Processer	25.3
	Others (Includes transporter and exporters)	17.1
MSME has a budget for Innovation	No	35.9
	Yes	64.1

Source(s): Author's own work/creation

Table 1. Summary statistics of the sample

SPSS v. 25 and AMOS v. 23. For all the scale items, all the confirmatory factor loadings were above 0.5 (Table 2) and significant at $p < 0.001$. According to Hair *et al.* (2010), high factor loadings are preferred as they indicate better internal consistency of scale items in addition to providing evidences of convergent validity. For all the constructs of the final analysis, the Cronbach's alpha was above 0.7. This implies internal consistency of the items (Nunnally, 1994). During the analysis, items with low Cronbach's alpha and/or low factor loadings were dropped. All items for interfunctional coordination, competitor orientation, attitude toward innovation, and innovativeness met this threshold. Only one item of customer orientation did not meet the thresholds and was subsequently dropped from the analysis (Table 2). The study also assessed composite validity of the constructs using composite reliability and average variance extracted. Results showed that the composite reliability were all above 0.73 (Table 3). Similarly, the average variance extracted were all above 0.5. According to Hair *et al.* (2010) and Fornell and Larcker (1981), AVE values above 0.5 shows convergent validity. Results also show that for most of the constructs the square root of the AVE values was above the correlations indicating that the constructs were less related.

Once the constructs passed the reliability and validity assessment, the subsequent analysis involved estimating the measurement and structural models using structural equation model, following the hypothesized relationships. In essence, the study applied the multivariate technique of SEM to establish the influence of agri-food MSME's market orientation on innovation attitude and firm innovativeness. In the structural model, the path estimates were generated for the pooled model and for level. The pooled model showed the overall influence of the market orientation of attitude and innovativeness, while the subgroup analysis allowed for an understanding of differences in the influence of market orientation on attitude and innovativeness across the different subgroups. The grouping variables used were district, size of business, access to innovation related services and type of business. The fit indices indicated good model fit. Specifically, the chi-square at 193° of freedom was 563.111, with, χ^2/df ratio of 2.918 (less than the threshold of three). All the other indices presented in Tables 2 and 4, were all within the recommended thresholds. During the analysis, model fit was improved by co-varying error terms with high observed covariances.

4.3 Pooled and group model results using multivariate analysis

Multivariate analysis results for the whole sample showed that interfunctional coordination had a positive effect on both attitude ($p < 0.01$) and firm's innovativeness ($p < 0.1$).

Construct/Scale item	Mean	SD	CFA factor loadings
Interfunctional coordination ($\alpha = 0.894$)			
All our products and services that we deal in must be profitable	4.92	0.84	0.704
I, as the owner/manager of this firm always emphasize market performance	4.99	0.90	0.851
In our firm, we consider profit performance measured by market indicators	4.91	0.83	0.673
We focus on attaining a positive margin in the long term for our firm	4.84	0.98	0.815
In our firm, we usually focus on obtaining rapid payback from our activities	4.89	0.86	0.593
In our firm, regular profits are the primary objective of the business	5.05	0.97	0.806
Competitor orientation ($\alpha = 0.796$)			
We diagnose the goals of other firms	3.89	0.83	0.577
In our firm, we recognize success areas of our key competitors	4.27	0.76	0.706
We spot the failures of our key competitors	4.08	0.77	0.813
We assess the strengths and weaknesses of key businesses that compete with our business	4.30	0.77	0.734
Customer orientation ($\alpha_1 = 0.609$, $\alpha_2 = 0.714$)			
We think about the benefits that our customers will receive by consuming our products/services	4.91	0.95	0.881
We anticipate customer's needs and suggest new ways of addressing it	4.86	0.84	0.634
We are in close contact with lead customers in order to address their specific needs†	5.04	0.95	0.354
Attitude toward innovation ($\alpha = 0.930$)			
Adopting innovations is a useful decision	4.81	1.09	0.875
In this firm, we value employees that innovate	4.84	1.07	0.854
Those who are important to me, think we should innovate in this firm	4.41	1.29	0.748
Those who are important to our firm think we should innovate	4.56	1.20	0.679
We are motivated to innovate	4.85	1.11	0.739
Innovations improve the results of our firm	4.60	1.25	0.878
Innovation is worth the effort	4.86	1.04	0.795
Innovativeness ($\alpha = 0.863$)			
Innovation based in research targeting the technical components of our operations are readily accepted on our firm	4.66	1.23	0.812
In our firm, innovation is voluntarily welcomed in our business operations	4.71	1.16	0.817
In our firm, we make deliberate efforts to improve our products and services	4.72	1.15	0.842

Note(s): n = 521
Items were measured on a six-point Likert scale
Goodness of fit: Chi-square (193) = 563.111, $p < 0.001$; chi-square/d.f. = 2.918, GFI = 0.908, CFI = 0.954, TLI = 0.945, RMSEA = 0.061 (Pclose = 0.001), SRMR = 0.0410
†Indicates item that was dropped due to low loading value
All factor loadings were significant at $p < 0.01$
α Cronbach's alpha, α1 and α2 Cronbach's alpha before and after items were dropped
Source(s): Author's own work/creation

Table 2.
Mean of scale items, internal consistency and factor loadings per construct

This finding supports research hypotheses H1. On the other hand, competitor orientation had a negative influence on firm's innovativeness ($p < 0.05$) while it had no significant influence on attitude. Hypotheses H2a and H2b are thus not supported. Customer orientation had a positive effect on attitude toward innovation ($p < 0.05$) but did not have any significant influence on firm's innovativeness. This implies that hypothesis H3a was supported while, hypothesis H3b was not supported. Results also showed that attitude toward innovation had a positive effect in firm's innovativeness ($p < 0.01$), thus supporting hypothesis H4 (Table 4).

Subgroup level analysis by district of location of agri-food MSMEs shows differences in the relationship between market orientation, innovation attitude, and firms'

innovativeness (Table 5). Interfunctional coordination had a positive and significant effect on innovation attitude across all districts, and a positive significant effect on firm innovativeness for Wakiso district only. Similarly, innovation attitude had a positive significant effect in firm's innovativeness in all the districts. Both competitor orientation and customer orientation had no significant effect on innovation attitude in all the districts. On the other hand, competitor orientation had a significant negative effect on firm's innovativeness, while customer orientation had no significant effect in firm's innovativeness.

Subgroup level analysis by size of business showed that business sizes moderated the relationship among market orientation, innovation attitude, and firm's innovativeness (Table 6). Specifically, the influence of interfunctional coordination on innovation attitude was positive for all agri-food business sizes. Similarly, the influence of innovation attitude was positive in all MSME size categories. The influence of customer orientation on attitude was only significant and positive for micro and small enterprises, but was not significant for medium agri-food enterprises. At subgroup level, competitor orientation did not have any significant influence on both attitude and firm's innovativeness for all the business size subgroups, while customer orientation had no significant influence on firm's innovativeness for all business size classifications.

Subgroup level analysis for agri-food MSMEs by business type showed that MSME type moderates the relationship among market orientation, attitude, and firm's innovativeness (Table 7). The influence of interfunctional coordination on attitude was positive for agri-food

Construct	1	2	3	4	5	CR	AVE
Interfunctional coordination (1)	*0.746*					0.881	0.557
Competitor orientation (2)	0.199	*0.713*				0.803	0.508
Customer orientation (3)	0.644	0.222	*0.767*			0.736	0.589
Attitude toward innovation (4)	0.725	0.135	0.581	*0.799*		0.924	0.638
Firm innovativeness (5)	0.701	0.108	0.585	0.850	*0.823*	0.740	0.678

Note(s): CR: Composite reliability, AVE: Average Variance Extracted
Numbers in italics on the main diagonal are square roots of the AVE, others are correlation coefficients
Source(s): Author's own work/creation

Table 3.
Construct validity of the measurement model (n = 521)

Path and perspectives			Std.β	S.E	C.R	*P*-value	Result
Interfunctional coordination	→	Attitude	0.684	0.128	8.586	0.000***	Supported
Competitor orientation	→	Attitude	−0.027	0.068	−0.785	0.432	Not supported
Customer orientation	→	Attitude	0.179	0.087	2.378	0.017 **	Supported
Interfunctional coordination	→	Firm innovativeness	0.124	0.108	1.921	0.055*	Supported
Competitor orientation	→	Firm innovativeness	−0.056	0.053	−2.185	0.029**	Supported
Customer orientation	→	Firm innovativeness	0.030	0.064	0.570	0.569	Not supported
Attitude toward innovation	→	Firm innovativeness	0.864	0.060	14.908	0.000***	Supported

Note(s): Chi-square = 563.11; df = 193; Chi-square/df = 2.918; p = 0.000; GFI = 0.908; CFI = 0.954; TLI = 0.945; IFI = 0.955; RMSEA = 0.061 (PCLOSE = 0.001); SRMR = 0.0410. S.E, C.R, p-value indicate Standardized estimates, Standard errors, Critical ratio and probability value respectively
*, ** and *** indicate significance at $p < 0.1$, $p < 0.05$ and $p < 0.01$, respectively
Source(s): Author's own work/creation

Table 4.
Pooled model results

Path and perspectives			Standardized estimates Kampala	Mukono	Jinja	Wakiso
Interfunctional coordination	→	Attitude	0.474**	1.143***	0.688***	0.812***
Competitor orientation	→	Attitude	0.039	−0.015	−0.107	−0.050
Customer orientation	→	Attitude	0.190	−0.173	0.366	0.089
Interfunctional coordination	→	Firm innovativeness	0.138	−0.441	0.173	0.205*
Competitor orientation	→	Firm innovativeness	−0.162***	0.004	0.156	0.011
Customer orientation	→	Firm innovativeness	0.021	0.295	−0.103	−0.085
Attitude toward innovation	→	Firm innovativeness	0.873***	1.153***	0.807***	0.868***

Table 5.
Group level analysis for business location

Note(s): *, ** and *** significant at $p < 0.1$, $p < 0.05$ and $p < 0.01$ respectively
Source(s): Author's own work/creation

Path and perspectives			Standardized estimates Micro	Small	Medium
Interfunctional coordination	→	Attitude	0.568***	0.674***	0.962***
Competitor orientation	→	Attitude	0.037	0.001	0.008
Customer orientation	→	Attitude	0.331**	0.202**	−0.217
Interfunctional coordination	→	Firm innovativeness	0.144	0.132	0.130
Competitor orientation	→	Firm innovativeness	0.059	−0.036	−0.077
Customer orientation	→	Firm innovativeness	0.081	0.054	−0.237
Attitude toward innovation	→	Firm innovativeness	0.791***	0.840***	1.033***

Table 6.
Group level analysis for business size typology

Note(s): *, ** and *** significant at $p < 0.1$, $p < 0.05$ and $p < 0.01$ respectively
Source(s): Author's own work/creation

retailers, wholesalers, and processors, but was not significant for agri-food transporter/exporters. The effect of competitor orientation on attitude was positive and significant for agri-food transporters and exporters, but not for retailers, wholesalers, and processors. Similarly, the effect of customer orientation on attitude was positive and significant for agri-food processor, but not for agri-food retailer, wholesaler and transporter/exporter. The effect of competitor orientation on firm's innovativeness was negative and significant for agri-food wholesalers, but had no significant influence for agri-food retailers, processors, and transporters/exporters. The effect of innovation attitude on firm's innovativeness was positive and significant for all types of agri-food MSMEs, while there was no significant effect of customer orientation on firm's innovativeness across all agri-food types.

5. Discussion

This paper investigates the relationship among market orientation on innovation attitude and agri-food small and medium enterprises innovativeness in the Ugandan context. Results shows that innovation attitude drives firms' innovativeness. This was expected given that a positive attitude is a prerequisite for several firm undertakings including innovation and firm's innovativeness. Attitude plays a great role in influencing innovation (Trabucchi *et al.*, 2020; Fort-Rioche and Ackermann, 2013). According to Dibrell *et al.* (2011), a positive attitude is required of agri-food owners and managers, if they are to undertake or accept innovation.

Path and perspectives			Standardized estimates			
			Retailer	Wholesaler	Processor	Transporter or exporter
Interfunctional coordination	→	Attitude	0.629***	0.815***	0.701***	0.164
Competitor orientation	→	Attitude	−0.061	−0.094	−0.031	0.221**
Customer orientation	→	Attitude	0.154	0.089	0.264*	0.432
Interfunctional coordination	→	Firm innovativeness	0.064	0.152	−0.067	0.182
Competitor orientation	→	Firm innovativeness	0.045	−0.105**	0.040	−0.065
Customer orientation	→	Firm innovativeness	0.060	−0.002	−0.0140	0.199
Attitude toward innovation	→	Firm innovativeness	0.894***	0.868***	1.140***	0.750***

Note(s): *, ** and *** significant at $p < 0.1$, $p < 0.05$ and $p < 0.01$ respectively
Source(s): Author's own work/creation

Table 7. Multivariate group level analysis for type of agri-food MSME

Thus, inculcating a positive attitude on innovation for agri-food actors would also increase their innovativeness. This positive attitude would also require a good level of internal coordination. According to findings of this study, interfunctional coordination which depicts coordination among the different departments of the firm was seen to positively influenced both attitude toward innovation and firm innovativeness. This finding is similar to those of Ho *et al.* (2018), who reported a positive influence of interfunctional coordination of innovation in Vietnam's beef value chain. Interfunctional coordination depicts a firm's management capability. According to Tindiwensi *et al.* (2020), farm management has a positive relationship with market orientation.

Whereas interfunctional coordination was important for both attitude and firm innovativeness, at subgroup level, however, the influence of interfunctional coordination on firm innovativeness was only observed for Wakiso district, but not for the other districts, MSMEs sizes and MSMEs types. On the other hand, the influence of interfunctional coordination on innovation attitude was significant across all subgroups except for transporters or exporters. This implies that the influence of interfunctional coordination may not be critical for certain categories of agri-food MSMEs. The influence of interfunctional coordination on firm innovativeness can thus be said to be localized to certain conditions including the product (Lukas and Ferrell, 2000).

Results also show that in the pooled model, competitor orientation did not influence attitude but negatively influenced firm innovativeness. A study by Ho *et al.* (2018) showed that although competitor orientation had a negative coefficient, it did not have a significant effect in firm innovativeness. Consequently, the influence of competitor orientation observed in this study could be attributed to homogeneity of agricultural products which makes relatively hard to create a unique identify of the product without driving cost high. Consequently, agri-food MSME owners who are sensitive to their competitors would be more comfortable dealing in undifferentiated product, making them have low levels of innovativeness. In other words, they find it relatively easier to compete with non-innovative undifferentiated products. At subgroup level however, competitor orientation positively influenced attitude. This is also related to why, at subgroup level, the influence of competitor orientation on firm innovativeness was only significant for wholesalers and for MSMEs in Kampala only. Such findings imply variations in competitive pressures across different context, and thus differences in reactions of MSME actors. For instance, agri-food

wholesalers tend to have limited room for innovation since they do not face the final consumers directly so as to know what innovations to undertake.

This study also finds that customer orientation did not influence firm innovativeness. Instead, it positively influenced attitude toward innovation. Even at subgroup level, the influence of customer orientation on firm innovativeness was not observed. However, the influence of customer orientation on attitude varied in the subgroup analysis. The influence of customer orientation on attitude was significant for processors, micro and small agri-food businesses. This finding implies that customer orientation influence attitude positively but only for some categories of agri-food firms. Bamfo and Kraa (2019) observed an indirect influence of customer orientation and innovation, while Newman *et al.* (2016) and Ho *et al.* (2018) independently reported positive effects of customer orientation on firm innovativeness. The implication of this finding is that encouraging MSMEs to have a better customer orientation would positively improve their attitude toward innovation. This positive attitude on innovation would later improve firm innovativeness. A firm's customer orientation depicts their level of trust with the respective upper chain actor. This trust, which has been shown to influence MSME performance (Odongo *et al.*, 2016, 2017; Owot *et al.*, 2022, 2023), could have played a salient role in the relationship between customer orientation and innovation. Consequently, firms that have a positive customer orientation are more likely to trust the relationship and its ability to payback their investments in innovation activities.

6. Conclusions and policy implications

This study presents results of the influence of market orientation on innovation attitude and firm innovativeness in the context of a developing country agri-food small and medium enterprises. The findings show overall effects of innovation attitude on firm innovativeness, and localized influence of market orientation on firm innovativeness and attitude. For instance, whereas the influence of interfunctional coordination on both attitude and firm innovativeness was observed in the pooled model, it was not observed for certain groups in the subgroup analysis. These lack of observation at subgroup level are worth noting since it helps to avoid a one-size-fits-all approach. Consequently, it is important that efforts to foster firm level innovation among agri-food MSMEs takes into consideration the wide diversity of agri-food businesses. This diversity, requires that proponents of agri-food MSME innovation develop context specific strategies that focus on strengthening the internal coordination within firm departments in addition to encouraging the development of positive attitude so as to increase overall firm innovativeness. Approaches to developing a positive innovation attitude may involve encouraging agri-food MSMEs to have better customer focus. Despite the findings, this study suffers from one main limitation that can be addressed through further studies. This study focused on the agri-food chain as a whole without looking at the specific commodities. This was due to the objective of the study that was to understand the relationship between MO, innovation attitude and firm's innovativeness of Uganda's agri-food sector as a whole. The study therefore recommend that future research can extend on this study to focus on specific commodity chains that are so numerous in the agri-food sector.

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