

Demystifying the Effects of Organizational Sensemaking and Green Dynamic Capabilities on Sustainability Performance

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The present study aims to investigate how organizational sensemaking contributes towards sustainability performance (i.e., environmental performance and social performance) by proposing green dynamic capabilities as underlying mechanisms. It uses time-lagged design and the data were collected in two waves, from 232 agribusiness organizations in Romania using an online survey. PLS-SEM was employed in WarpPLS 8.0 software to analyze the data and test the hypothesized relationships. Results showed that organizational sensemaking positively influences both dimensions of sustainability performance. Moreover, the results also supported the mediating role of green dynamic capabilities. Findings imply that organizations that are proficient in sensing and interpreting external events, cues, and changes can successfully strengthen internal business processes (by developing green dynamic capabilities) to address environmental concerns, which in turn helps these organizations to achieve enhanced sustainability performance. The novelty of this study is the development of a dynamic-capabilities-based integrated framework for sustainability performance.

Keywords: Sustainability; Organizational Sensemaking; Environmental Performance; Social Performance; Dynamic Capabilities; Agribusiness.

Introduction

There is ample evidence that environmental degradation deteriorates ecosystems; particularly it affects human well-being and animal lives (Jiang *et al.*, 2021; Satrovic & Adedoyin, 2022). Governments, societies and institutions are, therefore, constantly investing to not only prevent harmful emissions but also to improve the quality of the environment (Asiaei *et al.*, 2022; Marrucci, Daddi, & Iraldo, 2023; Murshad *et al.*, 2021; Zhang, 2023). In this regard, regulatory institutions force industrial organizations to embed eco-friendly business practices to comply with environmental regulations and, subsequently, to respond to the environmental degradation (Khalid *et al.*, 2023; Zampone *et al.*, 2023). As a result, organizations endeavour to redefine business activities aimed at improving existing products, offering new products, and modifying/refining internal processes in order to ensure sustainability performance (Cera *et al.*, 2022; Khan *et al.*, 2021; Pei, 2023). As a consequence, more and more researchers have devoted themselves to examining why and how organizations contribute towards sustainability performance.

One approach relies on resource-based view (RB-V), which suggests that organizations can compete and achieve competitive advantage if they respond quickly to external changes through a combination of unique resources and the ability to use them (Barney *et al.*, 2011; Teece, 2007).

Drawing on this, we posit that organizational sensemaking is an important strategic resource, which provides valuable insights into changes and external market demands and prepares an organization to develop business ideas before its competitors. According to Sheng (2017), the organizations' ability to make sense of external changes enables them to "see their positions in the business environment better and therefore strengthen critical processes to prepare alternatives for turbulences" (p. 28). For example, Hernes and Obstfeld (2022), as well as Whittle, Vaara, and Maitlis (2023) noted that understanding how sensemaking works, may help managers and organizations improve their ability to adapt to a dynamic environment and to successfully achieve their desired goals. Moreover, Feng, Liu, and Liu (2023) noted that organizational cognition is important when building organizational identity, dynamic capabilities, and change. Thus, organizational sensemaking seems to play an important role in refining existing products, services, and processes, as well as to offer new ones to meet environmental standards and prompt sustainability performance (i.e., environmental performance and social performance).

Organizations facing sustainability pressures may better cater to changing market demands by adapting internal business processes to external changes (Cepeda & Vera 2007; Melander, 2018). RB-V contends that organizations' capabilities are influenced by their interactions with markets, available opportunities, and weaknesses of their

existing capabilities (Barney *et al.*, 2011; Grant, 1991). Derived from RB-V, the dynamic capability theory (DCT) focuses on the organizations' ability to reconfigure resources so as to address external changes (Teece, 2014). In this regard, we submit that green dynamic capabilities are likely to serve as an organization's ability to use external cues (i.e., sensemaking) in order to build appropriate internal processes to achieve both financial and non-financial objectives, while ensuring the principles of environmentalism. Green dynamic capabilities comprise the following: green strategic capability, R&D green innovation capability, and green management capability (Hung *et al.*, 2010; Singh *et al.*, 2022; Yousaf, 2021).

This study considers sustainability performance (i.e., environmental and social performance) as a key strategic outcome of organizations that respond to external pressures regarding environmental concerns, implementation of green business practices, compliance with environmental regulations, and institutionalization of sustainability. To achieve sustainability performance outcomes, this study proposes organizational sensemaking as a necessary strategic resource which may help organizations to develop cognitive maps of external changes and to sense, analyze, and use external cues regarding the need for sustainable business practices. As a result, organizational sensemaking helps organizations to meet environmental needs and improve sustainable business performance. In addition, this study suggests that green dynamic capabilities are an important underlying mechanism to address the argument of how organizational sensemaking contributes towards sustainability performance. As such, it develops a dynamic capability framework and contributes to the existing body of knowledge by arguing that organizational sensemaking is a key strategic asset as, through continuous sensing, analyzing, and using external information, it fosters green dynamic capabilities which modify internal operations and processes with an aim to optimize sustainability performance.

This study is structured as follows: the first section provides the background, defines the topic, attempts to identify the research gap and provides the present research rationale. The second section undertakes a review of the literature and of the hypotheses developed. The next section discusses the methodology, the analysis and the results. The findings are then discussed, along with theoretical and practical implications as well as limitations. The final section contains the conclusion of the study.

Literature Review and Hypothesis Development

Organizational Sensemaking

Organizational sensemaking is a process of assigning meanings to the issues, actions, and events in an organization's operating environment (Weick, 1995). The sensemaking process becomes imperative for the development of shared meanings when issues and events are somehow confusing. Since events occurring in an organization's environment play a vital role in strategic decision-making and organizational change, coherent understanding of 'what is going on' is critical for collective actions, especially in turbulent and dynamic environments (Maitlis, 2005). In simple words, organizational sensemaking revolves around the organizational members'

efforts to interpret the events against the environment and through interactions with each other in order to build shared meanings, comprehend the world, and act collectively. Consequently, organizational sensemaking highlights the process through which organizational members see, analyze, and comprehend cues from the environment, and how a shared or common goal is set through collective meaning-making activities. These collective sensemaking activities give a simplified meaning to the observed reality to set common or shared goals and the best way to achieve them (Maitlis, 2005; Sheng, 2017).

As advocated by Whittle *et al.* (2023), sensemaking helps managers and other organizational actors to comprehend events and/or issues, and to ascribe "meanings by extracting, interpreting, and acting upon cues from their environment" p. 1808. Sensemaking is imperative because of the following reasons: (a) it helps organizations to make sense of complex and ambiguous situations, (b) it helps to identify and respond to external threats as well as to opportunities, and (c) it helps to coordinate actions among organizational members. By understanding the construction of meaning in sensemaking and how sensemaking works, organizations can improve their ability to adapt to changing circumstances and to achieve their goals. In addition to that, Hernes and Obstfeld (2022) highlighted the role of time in the sensemaking process and argued that some actors get involved in making sense of "living moments" and rely upon the present sequence of events to extract and interpret meanings of what is happening. On the other hand, some actors emphasize the "collective sense of meaning of their pasts and futures as a basis for moving through time" p. 5.

Sustainability Performance

In recent years, sustainability has received increased attention (Francis & Thomas, 2022; Hao, Fu, & Albitar, 2023). The reasons behind the growing focus on sustainable business practices revolve around regulatory compliance, resources conservation, ethical considerations, and environmental concerns (Sancak, 2023; Sudusinghe & Seuring, 2022). The forms of impact of business operations are manifold, as organizations exhaust natural resources quickly and production processes involve the emission of pollutants that is not only harmful ecologically, but also triggers complex corporate behavior (Moslehpour *et al.*, 2022; Orazalin, 2019; Yadegaridehkordi *et al.*, 2023). Sustainability performance refers to the assessment of an organization's activities, practices, and initiatives based on their impact on the environment, society, and the economy (Buyukozkan & Karabulut, 2018). It measures how well an organization operates in a sustainable manner by evaluating its efforts in areas such as environmental conservation, social responsibility, carbon emissions, waste management, resource conservation, and ethical business practices.

Sustainability performance plays an important role because it helps businesses and other organizations understand their strengths and weaknesses in terms of sustainability and enables them to take actions and make improvements for long-term growth while minimizing harmful impacts on environment and society (Buyukozkan & Karabulut, 2018; Mengistu & Panizzolo, 2023; Nayal *et al.*, 2022; Yin *et al.*, 2023). Among several benefits, sustainability improves an organization's reputation and

image by demonstrating a commitment to sustainable practices, allows for better risk mitigation by identifying and managing risks associated with environmental, social, and governance factors (e.g. Rajesh & Rajendran, 2020), and also stimulates cost savings because adopting sustainable practices often leads to cost reductions in the long run: strategies such as energy efficiency, waste reduction, and responsible sourcing can result in lower energy bills, improved operational efficiencies, and minimized waste management expenses (Lazaroiu *et al.*, 2020; Nayal *et al.*, 2022; Roscoe *et al.*, 2019). Dasgupta (2023) and Takalo, Tooranloo, and Parizi (2021) noted that the inclination to adopt sustainable business practices can drive innovation by promoting the development of new products, services, and business models. It also opens doors to explore emerging markets and consumer trends, such as the growing demand for eco-friendly products and solutions.

In addition to that, organizations that place emphasis on environmental ethics are more likely to gain a competitive edge in the market (Singh *et al.*, 2019). Differentiating themselves based on sustainability performance can help firms attract and retain customers, outperform competitors, and access new markets that value environmentally and socially responsible practices (Lazaroiu *et al.*, 2020). Aware of the importance of sustainability, governments worldwide increasingly implement regulations and policies to address environmental and social challenges (Chien, 2023). Being proactive and demonstrating compliance with these regulations can help firms avoid legal penalties and negative impacts on their operations (Chan, Lai, & Kim, 2022; Marrucci, Daddi, & Iraldo, 2023). Aligning with stakeholder expectations can also protect against reputational damage and potential boycotts or boycott threats (Chan *et al.*, 2022). Last but not least, sustainable practices support long-term value creation and resilience (Negri *et al.*, 2021). By considering the environmental and social impacts of their operations, companies can better anticipate and adapt to shifting market dynamics and emerging trends, thus ensuring their long-term viability and profitability (Nguyen *et al.*, 2021; Nizam *et al.*, 2019; Rahi, Akter, & Johansson, 2021). In a nutshell, improving sustainability performance has become crucial for organizations wishing to remain competitive, responsible, and future-proof in a world increasingly focused on environmental and social issues.

Organizational Sensemaking and Sustainability Performance

Growing pressures for sustainability are forcing organizations to change the basis of competition through radical changes in production processes, product & service design, materials & workmanship, end-of-life programs, and increased levels of designs for disassembly and recycling (Murshad *et al.*, 2022; Singh *et al.*, 2022). In this regard, sensemaking is also beneficial for organizations eager to sustain competitive advantages in contexts where they are expected to redefine existing products and introduce new ones that are eco-friendly, hence improving the sustainability performance (environmental and social performance) of the focal organization (Matteo, 2022). In this regard, existing literature sheds light on the organizations'

continuous efforts to effect, across their supply chains, changes that address environmental concerns.

Redefining the processes is likely to improve process efficiency through a reduction in waste and harmful emissions, in the likelihood of environmental accidents, energy and resource consumption, and through an increase in the reuse of waste, recyclability, material recovery from used products, and the responsible handling of toxic waste (Murshad *et al.*, 2022). In this way, sensemaking through collective meaning-making and setting common goals enables organizations to select actions, products and processes that minimize the detrimental impact on the environment, while increasing the organizations' environmental performance. Moreover, organizational endeavors go beyond mere regulatory compliance and encompass the efforts that result in the best value for end customers, especially when environmental issues are at play (Matuszewska-Pierzynka, 2021; Singh *et al.*, 2022). Therefore, not only does sensemaking provide insights into the environmental impact of industrial organizations, but also offers initiatives to improve the environmental performance of the focal organizations. Hence, we hypothesize that:

H1: Organizational sensemaking has a positive relationship with environmental performance.

Besides improving environmental performance, organizational sensemaking is likely to increase corporate social performance too. Corporate social performance refers to the "configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships" (Wood, 1991, p. 693). In simple words, social performance encompasses the organizations' practices, policies, actions, and investments directed towards community welfare and the well-being of the society. Prior studies highlight that corporate social performance serves as the basis of competitive advantage and improves organizations' financial as well as market performance (see Bassetti *et al.*, 2021). Besides the benefits that organizations reap from improved social performance, studies (e.g. Matuszewska-Pierzynka, 2021; Murshad *et al.*, 2022) indicate that mass criticism from key stakeholders about the organizations' role in the community has lead top management to undertake action for the betterment of society.

In this regard, sensemaking may serve as a strategic source for organizations to register expectations of key stakeholders and devise strategies to respond to such pressures through collective decision-making. Besides societal pressures and expectations, organizations can use their knowledge to comprehend competitive trends and promote social welfare by being at the heart of competition. Thus, organizations find new ways not only to compete but to build their good image (Li, Liao, & Ma, 2022; Szabo & Webster, 2021). In addition, sensemaking also makes it easier for organizations to recognize and maintain funds for local community initiatives, especially when local communities go through hard times/crises (Orazalin, 2020). Therefore, it is suitable to argue that not only does organizational sensemaking enable organizations to foresee

the community's interest in competitive advantage but also leads to the undertaking of necessary initiatives that foster community development. Based on these arguments, we state that:

H2: Organizational sensemaking has a positive relationship with social performance.

Sensemaking and Green Dynamic Capabilities

We also propose that organizational sensemaking prompts green dynamic capabilities which in turn increase sustainability performance. In the context of a constant need to change, innovate, and adapt to external environmental demands, organizational sensemaking is likely to help comprehend management in complex circumstances (Weick, 1995). The evidence suggests that most failures in strategic competition were a consequence of organizations overlooking critical cues and the need to evaluate and use existing information in internal processes (Maitlis, 2005). Although sensemaking focuses primarily on the external business environment, organizations need adequate internal processes and capabilities (e.g., green dynamic capabilities) to reap the benefits of competitive advantage and superior performance (Sheng, 2017). Therefore, this study submits that organizations are sensitive to external environmental cues and that their competitive edge depends upon their capabilities to develop and adjust internal processes to make use of such cues.

Past studies highlight the fact that organizations continuously scan and monitor their environment to ensure their actions are in line with the external changes and that shared meanings of external cues are still valid (e.g., Cockburn *et al.*, 2000; Hung *et al.*, 2010). By doing so, sensemaking enables organizations to use their knowledge to find meaningful patterns in the stakeholders' preferences, consumer behavior, market trends, sectoral movements, competitor tendencies, and/or regulatory pressures, which in turn prepares them to tap into emerging opportunities as well as to respond quickly to external changes. Particularly, organizations are expected to use external clues to expand and/or modify existing capabilities as well as to develop new ones to ensure compliance of products, services, and process design with environmental regulations (Matteo, 2022). In sum, sensemaking is likely to lead organizations towards the development of green dynamic capabilities i.e., green strategies, innovation, and management capabilities. Therefore, we propose that:

H3: Organizational sensemaking has a positive relationship with green dynamic capabilities.

The Role of Green Dynamic Capabilities for Sustainability Performance

The notion of green dynamic capabilities refers to an organization's ability to purposefully create, modify and/or extend its resource base under the influence of external changes in order to bring about eco-friendly elements in products, services, and/or processes. Green dynamic capabilities comprise green strategic capability, R&D green innovation capability, and green management capability (Hung *et al.*, 2010; Singh *et al.*, 2022). These form a

particular set of capabilities developed out of organizations' idiosyncratic managerial attributes, culture, values, and routines, which makes these capabilities difficult for competitors to replicate. Earlier research shows that green dynamic capabilities help organizations to achieve competitive advantage, operational efficiency, green innovation, public image and goodwill (e.g., Schilke *et al.*, 2018; Shang *et al.*, 2020). We submit that green dynamic capabilities have the potential to increase sustainability performance (environmental and social performance).

We argue that green dynamic capabilities enable organizations to organize their resource base so as to address challenges of environmentalism, pollution, and climate change. Organizations, with the help of green dynamic capabilities, exploit existing resources and knowledge to develop and/or renew sustainability capabilities, which has become instrumental in today's business routines (Singh *et al.*, 2022). Organizations' green dynamic capabilities increase corporate sustainability efforts, especially with well-developed resources and knowledge. Likewise, these capabilities allow organizations to expand initiatives beyond the realm of economics to include corporate endeavors aimed at improving the environment and the well-being of society (Shang *et al.*, 2020). In addition to that, green dynamic capabilities lead organizations towards the adoption of green management practices, eco-friendly product and process designs, green strategic objectives, green research and development (Singh *et al.*, 2022). As a consequence, green practices and strategic orientations ensure environmental protection by controlling scrap rate and pollutant emissions.

H4: Green dynamic capabilities have a positive relationship with environmental performance.

Likewise, green practices also influence social performance by increasing the green image of organizations as well as the effectiveness of green initiatives towards community well-being (Orazalin, 2020; Shang *et al.*, 2020). These practices are likely to benefit local communities in the form of low environmental risk, improved public safety and health, reduced environmental impact on the public, and protection of the rights of local communities. Therefore, green dynamic capabilities are deemed to increase environmental performance and social performance (sustainability performance) of focal organizations. Hence, we hypothesize that:

H5: Green dynamic capabilities have a positive relationship with social performance.

The Mediating Role of Green Dynamic Capabilities

Besides the direct effect of green dynamic capabilities on corporate sustainability performance, we posit that they also serve as an important underlying mediating mechanism. In particular, organizational sensemaking prompts green dynamic capabilities which in turn enhance corporate environmental performance and social performance. In sum, sensemaking seems to be a critical organizational resource that stimulates internal processes responsible for competency renewal to respond to external demands and pressures. Thus, organizational sensemaking

is also expected to influence green dynamic capabilities which in turn prompt sustainability performance.

H6: Green dynamic capabilities mediate the relationship between organizational sensemaking and environmental performance.

H7: Green dynamic capabilities mediate the relationship between organizational sensemaking and social performance.

The proposed research framework.

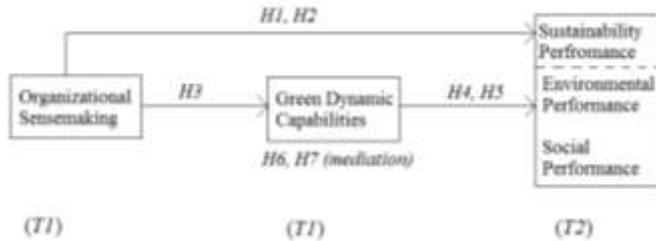


Figure 1. Proposed Research Framework

Research Methods

The data were collected from Romanian agribusiness organizations. Agribusiness organizations are involved in many activities ranging from farm production to the processing of agricultural products. Romania’s growth rate ranks it among the EU (European Union) countries with high economic growth (World Bank, 2023), to which agriculture-related firms contribute significantly (Marcuta et al., 2023). According to Romania’s CAP Strategic Plans¹, 23 % of Romanian workers – which is the highest rate of employment in the EU – are employed in agriculture and related industries. In terms of their contribution to the GDP,

agribusinesses represent 8–10 % of Romania’s GDP (World Bank, 2023). Moreover, agriculture is responsible for 17 % emission of greenhouse gasses (World Bank, 2023). Given its significant contribution to socio-economic development and its substantial impact on the environment, the agribusiness sector is a suitable research topic and the findings of the study are expected to help devise managerial principles capable of prompting sustainability performance.

This study relies on the analysis of data collected through a survey questionnaire. The data were collected in two waves from 232 Romanian agribusiness organizations. In the first wave (T1), we collected data related to organizational sensemaking, green dynamic capabilities, and control variables. In the second wave (T2), which was carried out two months after T1, we asked the respondents of T1 to rate environmental performance and social performance (i.e., sustainability performance). Since the unit of analysis for this study is the organization, one response from each organization was obtained where the target respondents were top leaders/managers and owners. The respondents were people holding key decision-making positions in organizations, with access to extensive knowledge about the operations and business practices. Respondents comprise managers as well as owners of agribusiness enterprises. The data were collected electronically using Google Forms. Initially, a list of 695 organizations, along with their email addresses, was compiled through different sources. An email detailing the purpose of the study and including the link to the form was sent to each organization, with a request to fill it in. In the first wave (T1), respondents from 247 (out of 695) organizations completed the questionnaire while 232 responses (out of 247) were received in T2. The sample profile is given in Table 1.

Table 1

Sample Profile

Area of Business	Number of organizations	Percentage	Accumulative
1. Agrichemical and seed producers	32	13.79%	13.79%
2. Biofuel and fertilizers	31	13.36%	27.15%
3. Food processors	44	18.97%	46.12%
4. Farm machinery/equipment manufacturers	45	19.39%	65.51%
5. Livestock & dairy	44	18.97%	84.48%
6. Animal feed manufacturers	36	15.52%	100%
Total	232	100%	

This study used a pre-developed questionnaire, and the responses were measured on a 5-point Likert scale. We measured organizational sensemaking using the 5-item scale of Johnson et al. (2004). The respondents were asked to rate the extent to which they engage in the sensemaking process. Sample items include “If something seems to be going wrong, we try hard to figure out why.” and “We try to identify our mistakes quickly so that they are not repeated.” Following Singh et al. (2022), green dynamic capabilities were measured using the 11-item scale of Hung et al. (2010). This scale comprises three dimensions: green strategic

capability (4-items), R&D green innovation capability (3-items), and green management capability (4-items). Sample items include “My organization has competitive flexibility in the industry.”, “My organization has the ability to develop new green products or technology.”, and “My organization has the ability to understand the needs of the customers.”

Sustainability performance was measured in terms of environmental performance and social performance. Environmental performance was measured using Gallardo-Vazquez and Sanchez-Hernandez’s (2014) scale which comprised of 8-items. The respondents were asked to rate

¹ This data is taken from EU’s report on “Romania’s CAP Strategic Plan for the Implementation of the CAP 2023-27.” Details can be accessed on: <https://agriculture.ec.europa.eu/>

the extent to which they perceive that their organization focuses on pro-environmental activities. Sample items include my organization "...reduced environmental impacts of production processes or eliminated environmentally damaging processes.", "...reduced operations in environmentally sensitive locations.", and "...reduced the likelihood of environmental accidents through process improvements." Social performance was measured using the 6-item scale of Gallardo-Vázquez and Sanchez-Hernandez (2014). Sample items include "My organization improved employee or community health and safety." and "My organization protected claims and rights of the local community." Organizations' age and size are taken as control variables.

Analysis and Results

The analysis was performed in WarpPLS 8.0 by employing partial least square based structural equation modeling (PLS-SEM). The analysis comprises two models: the measurement model and the structural model. The measurement model provides results pertinent to construct validity, which is essential prior to testing the hypothesized relationships. The findings support the presence of convergent validity as factor loading for each construct meets the minimum threshold. Table 2 presents the values of factor loadings, Cronbach's Alpha, composite reliability, and variance inflation factor (VIF). In addition to convergent validity, the results of HTMT (hetero-trait-mono-trait) indicate that the data support discriminant validity too, as shown in Table 3.

Table 2

Factor Loadings and Reliability Statistics

Construct	Item	Factor Loading	α	CR	AVE	VIF
Organizational Sensemaking	OS1	0.949	0.967	0.974	0.883	1.453
	OS2	0.946				
	OS3	0.937				
	OS4	0.939				
	OS5	0.927				
Environmental Performance	EP1	0.686	0.897	0.918	0.585	1.390
	EP2	0.713				
	EP3	0.754				
	EP4	0.810				
	EP5	0.807				
	EP6	0.829				
	EP7	0.821				
	EP8	0.679				
Social Performance	SP1	0.815	0.879	0.908	0.624	1.362
	SP2	0.701				
	SP3	0.811				
	SP4	0.799				
	SP5	0.810				
	SP6	0.795				
Green Dynamic Capabilities			0.882	0.851	0.734	1.497
Green Strategic Capability	First order composite loading	0.753				
GSC1	0.807					
GSC2	0.760					
GSC3	0.720					
GSC4	0.890					
R&D Green Innovation Capability	First order composite loading	0.911				
GIC1	0.845					
GIC2	0.859					
GIC3	0.638					
Green Management Capability	First order composite loading	0.897				
GMC1	0.724					
GMC2	0.745					
GMC3	0.755					
GMC4	0.768					

α = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted; VIF = Variance Inflation Factor for Full Collinearity;

Table 3

Hetero-Trait-Mono-Trait (HTMT) Results for Discriminant Validity

	OS	EP	SP
Organizational Sensemaking (OS)	--		
Environmental Performance (EP)	0.532 [0.432, 0.633]		
Social Performance (SP)	0.352 [0.255, 0.449]	0.343 [0.246, 0.440]	
Green Dynamic Capabilities (GDC)	0.412 [0.314, 0.510]	0.411 [0.313, 0.509]	0.582 [0.481, 0.683]

Note: good if < 0.90, best if < 0.85; all values are significant at p<0.001, 90 % Confidence Interval values are in parentheses

Table 4 presents the correlation between the variables of the study as well as square roots of average variance extracted (AVE). The correlation analysis indicates that organizational sensemaking is positively correlated with environmental performance (r=0.492, p<0.001), social performance (r=0.324, p<0.001), and green dynamic capabilities (r=0.375, p<0.001). Likewise, these results also

show positive and significant correlation of green dynamic capabilities with the firms’ environmental performance (r=0.350, p<0.001) and social performance (r=0.486, p<0.001). Moreover, firm size was positively correlated with green dynamic capabilities (r=0.154, p<0.05), implying that larger firms are more inclined towards developing green capabilities to tackle external changes.

Table 4

Correlations Analysis and Square Roots of AVEs

	OS	EP	SP	GDC	FA
Organizational Sensemaking (OS)	(0.940)				
Environmental Performance (EP)	0.492***	(0.765)			
Social Performance (SP)	0.324***	0.292***	(0.790)		
Green Dynamic Capabilities (GDC)	0.375***	0.350***	0.486***	(0.857)	
Firm Age (FA)	-0.065	-0.042	-0.008	0.057	
Firm Size (FS)	-0.044	0.032	0.033	0.154*	0.039

Note: n=232, ***p<0.001, *p<0.05; bold values on diagonal in parentheses are square roots of AVEs

Model fit indices are shown in Table 5 and the results of the structural model are given in Table 6, respectively. Referring to Table 6, the results provide support for the first two hypotheses: organizational sensemaking is an important predictor of two dimensions of sustainability performance (i.e., $\beta=0.47$, p<.001 and $\beta=0.18$, p<0.01), namely environmental performance and social performance. The results show support for hypothesis 3 which states that organizational sensemaking prompts green

dynamic capabilities ($\beta=0.49$, p<0.001). Hypotheses 4 and 5 are related to the positive role of green dynamic capabilities and the results also indicate that green dynamic capabilities have a positive relationship with environmental performance ($\beta=0.26$, p<0.001) and social performance ($\beta=0.43$, p<0.001). Finally, the results support the mediating role of green dynamic capabilities for the relationship between organizational sensemaking and two dimensions of sustainability performance.

Table 5

Model Fit and Quality Indices

Average path coefficient (APC) = 0.224, P<0.01
Average R-squared (ARS) = 0.311, P<0.001
Average adjusted R-squared (AARS) = 0.302, P<0.001
Average block VIF (AVIF) = 1.154, acceptable if <= 5, ideally <= 3.3
Average full collinearity VIF (AFVIF) = 1.293, acceptable if <= 5, ideally <= 3.3
Tenenhaus GoF (GoF) = 0.500, small >= 0.1, medium >= 0.25, large >= 0.36
Simpson's paradox ratio (SPR) = 0.778, acceptable if >= 0.7, ideally = 1
R-squared contribution ratio (RSCR) = 0.999, acceptable if >= 0.9, ideally = 1
Statistical suppression ratio (SSR) = 1.00, acceptable if >= 0.7
Nonlinear bivariate causality direction ratio (NLBCDR) = 0.778, acceptable if >= 0.7
Standardized mean absolute residual (SMAR) = 0.096, acceptable if <= 0.1

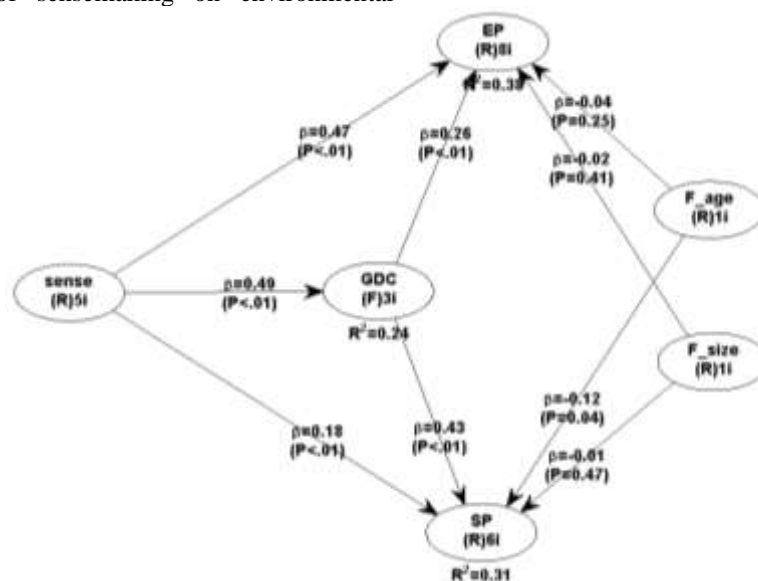
PLS-SEM Results for Hypotheses Testing

Path	β	P-value	Comments
<i>Direct Effects</i>			
OS \rightarrow EP	0.47***	<0.001	H1, Supported
OS \rightarrow SP	0.18**	<0.01	H2, Supported
OS \rightarrow GDC	0.49***	<0.001	H3, Supported
GDC \rightarrow EP	0.26***	<0.001	H4, Supported
GDC \rightarrow SP	0.43***	<0.001	H5, Supported
<i>Indirect Effects</i>			
OS \rightarrow GDC \rightarrow EP ($\Delta R^2=0.06, p<0.01$) ^a	0.13**	<0.01	H6, Supported
OS \rightarrow GDC \rightarrow SP ($\Delta R^2=0.16, p<0.001$) ^a	0.21***	<0.001	H7, Supported
<i>Total Effects</i>			
OS \rightarrow EP	0.60***	<0.001	
OS \rightarrow SP	0.39***	<0.001	
<i>Control variables</i>			
Firm Age \rightarrow EP	-0.04	0.249	
Firm Age \rightarrow SP	-0.12*	0.038	
Firm Size \rightarrow SP	-0.02	0.408	
Firm Size \rightarrow SP	-0.01	0.467	

Note: OS = Organizational Sensemaking; EP = Environmental Performance; SP = Social Performance; GDC = Green Dynamic Capabilities; ^a ΔR^2 values upon the introduction of a mediator among direct links; significant change values represent the presence of the mediation effect

Since hypotheses 6 and 7 involve mediation, we also evaluated if there is a significant change in the value of R-square arising due to the introduction of a mediator between the independent variable (organizational sensemaking) and the dependent variables (environmental and social performance). The results indicated a significant change in R-square for both dependent variables i.e., $\Delta R^2=0.06, p<0.01$ for environmental performance and $\Delta R^2=0.06, p<0.01$ for social performance contributed by green dynamic capabilities (mediator). The regression weight for the indirect effect of sensemaking on environmental

performance through green dynamic capabilities is $\beta=0.13, p<0.01$, whereas the regression weight for the indirect effect of sensemaking on social performance through green dynamic capabilities is $\beta=0.21, p<0.001$. The results provided support the mediation effect. In addition to that, firm age had a significant negative regression coefficient for social performance ($\beta=-0.12, p<0.05$), suggesting that newer organizations are more inclined towards societal well-being than older ones. The graphical representation of PLS-SEM results are displayed in figure 2.



sense=Organizational Sensemaking; EP Environmental Performance; SP=Social Performance; GDC=Green Dynamic Capabilities

Figure 2. Results of PLS-SEM

Discussion

The aim of this study was to investigate why and how organizational sensemaking prompts sustainability performance. Particularly, it examined the direct effect of sensemaking on environmental and social performance (why) and investigated the role of green dynamic capabilities in the aforementioned relationships (how). The empirical results showed support for the relationships among the research variables. The findings add to the pioneering literature by highlighting the role of sensemaking in promoting sustainability performance in Romanian agricultural organizations. More importantly, we reached the conclusion that green dynamic capabilities are an important mediating mechanism through which organizational sensemaking fosters sustainability performance. This study offers important theoretical and practical implications.

For the relationship between organizational sensemaking and sustainability performance, the results demonstrate a stronger effect of sensemaking on environmental performance ($\beta=0.47$, $p<0.001$) than on social performance ($\beta=0.18$, $p<0.01$). A possible reason could be the country's increased emphasis on climate problems and the enforcement of compliance with environmental regulations. These findings deepen our understanding of the potential role and significance of sensemaking in organizations and of how sensemaking influences firm-level outcomes, including sustainability performance. These findings are in line with those of Bien and Sassen (2020), Chen, Eweje, and Kennedy (2021), Podgorodnichenko et al. (2021), and Sendlhofer and Tolstoy (2022) that sensemaking plays a vital role in shaping perceptions about sustainability and social responsibility-oriented outcomes. The present study also confirms the earlier findings of Sheng (2017) on sensemaking-DCs nexus. In addition, Krush et al. (2013) found sensemaking as a predictor of sale capabilities. Nevertheless, this study found that sensemaking is equally important for firms to prompt green DCs as it is for conventional DCs.

Theoretical Implications

From a theoretical perspective, the contribution of this study is to develop the integrated framework of sensemaking and green dynamic capabilities as stimuli to sustainability performance. The “dynamic capabilities-based framework” covers the organization's ability to manage resources more effectively and respond to market variations properly. Organizational sensemaking and green dynamic capabilities establish the base for defining the capabilities (that are difficult to be imitated by competitors) which become the main source of sustainable competitive advantage.

Furthermore, the use of organizations' external knowledge and resources in dynamic and turbulent environments becomes a key capability in their internal processes (Cepeda & Vera 2007; Melander 2018). External changes require organizations to rationalize their external environment and to strengthen the base of internal processes to be able to modify and refine products, processes, and/or services capable of increasing sustainability performance. In this regard, sensemaking is likely to help organizations

rationalize their external environment by interpreting it and by giving it meaning based on market-related knowledge, and then act upon that knowledge to develop green dynamic capabilities to align internal processes with external needs.

Hence, this framework is based upon organizational sensemaking and argues that, through a sensible (re)configuration of resources, green dynamic capabilities are likely to transform organizational sensemaking into sustainability performance. Therefore, this study sheds light on the way agricultural organizations may develop unique green capabilities to tackle sustainability pressures by connecting organizational sensemaking, green dynamic capabilities, and sustainability performance (environmental and social performance).

Practical/Managerial Implications

From a practical point of view, this study highlights the importance of sensemaking for organizational performance outcomes. Findings provide critical insights into how external cues and meaning making processes affect sustainability performance outcomes. Sensemaking allows leaders/managers to better comprehend market fluctuations, stakeholders' expectations, regulatory and competitive pressures, and to equip organizations with the necessary capabilities to respond effectively to external challenges (Matteo 2022).

Secondly, managers and policymakers need to spend a significant amount of time and organizational resources to develop green dynamic capabilities because these increase environmental and social performance to comply with regulatory legislation and to satisfy customers. Green dynamic capabilities respond to external market changes and ensure competitiveness through the modification of internal processes and through value creation by following the principles of environmentalism. In simple words, the development of green dynamic capabilities depends upon the organizations' strategic intent to improve green strategies, extended research & development aimed at green transformation, and green management capability. As organizations embed green dynamic capabilities in their policies, routines, and systems, sustainability performance becomes a reality and helps organizations to improve their green image, reputation, and competitive advantage (Shang et al. 2020).

Lastly, besides economic responsibility, today's organizations place emphasis on corporate social responsibility and endeavor to improve current performance against previous outcomes. Findings of this study suggest that managers who are proficient in sensing and interpreting external events, cues, and changes can successfully strengthen internal business processes to address environmental concerns, which in turn helps organizations to achieve enhanced sustainability performance.

Limitations and Future Research Avenues

Besides important contributions and implications, this study has certain limitations too. First, the data are cross-sectional and were obtained from a single sector which restricts the extrapolation of the findings to other industries. Second, while we examined organizational sensemaking as

an enabler of sustainability performance (environmental and social performance), future studies may also investigate the impact of sensemaking on market and economic performance. Third, this study used the dynamic capability view to understand how sensemaking can improve sustainability performance; however, we encourage researchers to approach the sensemaking-sustainability nexus through alternative theoretical perspectives e.g., institutional theory, stakeholders' theory. Specifically, future studies may address how sensemaking develops organizational logic and routines to integrate greenness in products, processes, and/or services. More importantly, investigating whether the sensemaking-sustainability nexus is contingent upon the organizations' strategic orientation (defender, prospector, analyzer, reactor) would open new avenues for researchers and practitioners. That is because the organizations' orientation and ability to make sense of external changes may have different impacts. For example, a defender's response to external changes is different from a prospector's.

Conclusion

This study revealed that the organizations' ability to make sense of external changes enables them to see their positions better and allows them to strengthen critical processes for strategic competitiveness. In particular, this study found that organizational sensemaking is an important

predictor of sustainability performance i.e., environmental and social performance. Notably, organizational sensemaking has a strong impact on environmental performance which not only reflects Romanian agribusiness firms' regulatory compliance but also represents their willingness to adopt sustainable business practices voluntarily to reap long-term benefits. Results also highlighted that sensemaking enables organizations to develop green dynamic capabilities in quest of sustainability performance. This study infers that sensemaking prompts green dynamic capabilities which elicit sustainability performance in Romanian agribusiness organizations. More importantly, findings show that both organizational sensemaking and green dynamic capabilities are major sources of increased sustainability performance. This research also highlights the role of the meaning-making process in organizational change and performance outcomes.

Declaration

Authors declare no potential conflict of interest.

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