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Article — Published Version

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International Food and Agribusiness Management Review

Provided in Cooperation with:

Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Halle (Saale)

Suggested Citation: Kovalova, Maryna; Valentinov, Vladislav; Gagalyuk, Taras (2025) : Societal value creation through digital technologies: Insights from stakeholder collaborations of Ukrainian agroholdings, International Food and Agribusiness Management Review, ISSN 1559-2448, Brill, Leiden, Vol. 28, Iss. 3, pp. 580-598,
<https://doi.org/10.22434/ifamr.1277> ,
https://brill.com/view/journals/ifam/28/3/article-p580_6.xml

This Version is available at:

<https://hdl.handle.net/10419/323754>

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Societal value creation through digital technologies: Insights from stakeholder collaborations of Ukrainian agroholdings

RESEARCH ARTICLE

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Abstract

This paper examines the rapid adoption of digital technologies by Ukrainian agroholdings, highlighting the transformative potential of agrifood digitainability, where digital innovation and sustainability intersect within agricultural practices through diverse stakeholder collaborations. We introduce a conceptual framework that categorizes firm-stakeholder interactions across two dimensions — primary versus secondary stakeholders and value creation versus legitimacy — capturing the complexity of these engagements. This framework redefines the concept of societal value creation, particularly emphasizing stakeholders traditionally classified as “secondary” within stakeholder theory. Our empirical analysis reveals that collaborations with both primary and secondary stakeholders generate significant social and environmental benefits, repositioning secondary stakeholders as active contributors to firm value creation. We argue that by treating secondary stakeholders as co-creators of societal value, agrifood firms can harness digital technologies to achieve both competitive advantage and enhanced legitimacy within their stakeholder environment.

Keywords: agroholdings, digital technologies, societal value creation, stakeholder theory, Ukraine

JEL codes: D2, M1, M2, P2, Q1

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1. Introduction

The emerging trend of “agrifood digitainability” marks a convergence of digital innovation and sustainability in agriculture, where digital tools — such as precision farming, enterprise resource planning (ERP) systems, and data-driven logistics — are applied not only to enhance operational efficiencies but also to drive systemic change throughout the agrifood sector (cf. Kump and Fikar, 2021). This paper explores how such developments could be framed within stakeholder theory, a body of literature historically focused on firm-level stakeholder interactions. Traditionally, stakeholder theory has emphasized the managerial benefits of stakeholder collaboration, primarily in securing the firm-level sustainable competitive advantage (cf. Jones *et al.*, 2018). However, this firm-centric perspective overlooks a crucial dimension of digitainability: the capacity to generate system-wide impacts that transcend individual firm boundaries, ultimately influencing the broader agrifood ecosystem. Recent discussions within stakeholder scholarship have highlighted this “stakeholder-system divide,” noting the limitations of firm-focused approaches in accounting for societal and systemic value creation (cf. Johnson-Cramer *et al.*, 2022). As digital sustainability initiatives create novel opportunities for such impacts, the traditional emphasis on competitive advantage may fail to capture the depth and transformative potential of societal value creation.

To address this gap, we propose a reframing of societal value creation as a concept capturing the broad, system-level benefits that emerge from stakeholder collaborations. This notion is central to our newly developed conceptual framework, which provides an analytical lens to examine the complex interplay between firms and stakeholders in agrifood digitainability. Our framework categorizes firm-stakeholder collaborations along two dimensions — primary versus secondary stakeholders and value creation versus legitimacy — allowing for a multidimensional analysis that extends beyond firm-level confines. To illustrate this framework, we draw upon case studies and interview data from large-scale Ukrainian agroholdings, whose digital initiatives inspired our framework by facilitating stakeholder collaboration and contributing to societal value creation through advances in rural education, local economic support, and environmental sustainability.

The most recent evidence suggests that about a third of Ukraine’s 50 largest agroholdings, which farm about 14% of the country’s agricultural land (Latifundist, 2025), implement highly digitized reduced tillage technologies. 60–70% of the agroholdings use modern digital technologies for fuel level monitoring and variable rate application of crop protection products; 40% deploy variable rate application of mineral fertilizer while 20% use artificial intelligence to plan fertilizer rates and forecast plant/crop development (TOP LEAD and Latifundist Media, 2025). These activities are likely to be among the reasons why agriculture’s relative contribution to anthropogenic greenhouse gas emissions in Ukraine (14%) is twice as little as the global one (31%) (FAO, 2021).

Moreover, agroholdings are leveraging digital technologies as catalysts for resilience within their stakeholder environments (cf. Gagalyuk and Kovalova, 2024). They engage a diverse spectrum of stakeholders, including employees, suppliers, educational institutions, local communities, and environmental organizations. These activities generate ripple effects that address broader societal challenges, such as ecological resilience, rural education, and local economic development (*ibid.*). Importantly, many digital solutions are in-house products of agroholdings while the agricultural technology (AgTech) industry in Ukraine is generally booming despite the ongoing challenges posed by war (TOP LEAD and Latifundist Media, 2025).

In the context of the digital initiatives of agroholdings in Ukraine, our framework offers key insights into the potential of agrifood firms, particularly within emerging markets, to leverage digital technologies for systemic societal value creation. By expanding stakeholder theory to incorporate both value creation and legitimacy for diverse stakeholders, we demonstrate how firms navigate the imperatives of sustainability and digital transformation. This broadened framework informs stakeholder management in the era of digitainability, where firms must balance competitive objectives with long-term social and environmental impacts. Practically, our framework empowers managers to recognize and harness stakeholder collaborations not merely as tools for efficiency but as instruments for meaningful societal impact.

The paper proceeds as follows: we first review stakeholder theory within the context of agrifood digitainability, focusing on the tension between firm-centered and system-oriented perspectives and the emerging relevance of societal value creation. Next, we introduce our conceptual framework, detailing the dimensions of value creation and legitimacy across primary and secondary stakeholders. In the empirical section, we apply this framework to case studies of three major Ukrainian agroholdings, showcasing how digital technologies advance stakeholder collaboration with tangible societal benefits. We conclude by summarizing our contributions and discussing the implications of our findings.

2. Societal value creation in stakeholder theory and the agrifood system

Stakeholder theory, grounded in a relational view of business, traditionally frames firms as webs of interdependent, value-creating relationships with stakeholders such as employees, customers, suppliers, and the communities they serve (cf. Phillips *et al.*, 2019). Building on this, Freeman *et al.* (2020) argue that businesses are not isolated entities but part of larger systemic networks, noting, “every business is a system, embedded within a set of larger systems.” This systems perspective logically extends to stakeholder capitalism, which transcends the narrow focus of traditional shareholder capitalism and its tendencies toward self-interest, competition, and zero-sum outcomes (cf. Freeman *et al.*, 2007). Stakeholder capitalism reimagines value creation as a collective, ongoing process with significant societal implications for a broad range of stakeholders.

While stakeholder theory envisions inclusive value creation, it remains divided on the locus of this process. On one hand, the firm is often positioned as the focal point, where stakeholder engagement is oriented toward achieving competitive advantage (cf. Jones *et al.*, 2018). Alternatively, value creation can be viewed as a societal endeavor, fueling recent interest in a systems-level approach to stakeholder theory (cf. Berman and Johnson-Cramer, 2019; Johnson-Cramer *et al.*, 2022; Roulet and Bothello, 2022; Valentinov, 2024). This broader perspective aligns with Freeman’s (2023) ambitions for stakeholder capitalism as a framework for addressing grand challenges that exceed the capacity of individual firms. Scholars such as Johnson-Cramer *et al.* (2022) and Roulet and Bothello (2022) argue that global challenges — climate change, inequality, public health crises — demand a rethinking of stakeholder theory, moving from a firm-centric view to one that integrates cross-sectoral collaboration.

Prominent voices like Mazzucato (2021) underscore this need for broad, cooperative frameworks, advocating for “moonshot” collaborations among governments, corporations, and civil society to tackle pressing societal issues. Schwab and Vanham (2021) similarly call for stakeholder capitalism as a necessary response to sustainability challenges, positing that only a collaborative stakeholder approach can prevent catastrophic outcomes. Such critiques point to the limitations of firm-centered stakeholder theory in grappling with the complexities of contemporary global challenges. Scholars including Bevan *et al.* (2019) and Werhane (2002) argue that the firm-level focus is insufficient to address today’s systemic issues. Accordingly, stakeholder theorists have explored institutional forms like stakeholder systems (Roulet and Bothello, 2022) and networks (Bevan *et al.*, 2019; Rowley, 1997; Sachs and Rühli, 2011) as models for generating societal impact through multi-stakeholder collaboration.

Nevertheless, despite these advances, a “stakeholder-system divide” persists (cf. Johnson-Cramer *et al.*, 2022). While stakeholder theory has made strides in examining firm-level dynamics, it remains limited in capturing the ways businesses contribute to broader social and moral aims. For instance, Jones *et al.* (2018) argue that fostering stakeholder relationships conducive to sustainable competitive advantage requires rare and inimitable relational capabilities. Weitzner and Deutsch (2019) critique this perspective, noting that such rare capabilities restrict moral stakeholder relationships to a select few firms, thereby constraining stakeholder theory’s potential to impact the wider system. This critique raises a deeper question: can stakeholder theory fully reframe business as a societal institution oriented toward moral goals beyond profit? (cf. Valentinov, 2024)

This firm-system tension is particularly pronounced in the context of agrifood digitainability — the merging of digital transformation and sustainability in agriculture. Digitainability challenges businesses to balance operational objectives with wider societal and ecological responsibilities. The dual trends of sustainability and digitalization (cf. Lichtenthaler, 2021) necessitate a shift from firm-focused strategies to ecosystem-level approaches involving multi-stakeholder collaboration across value chains (cf. Gupta *et al.*, 2020). Here, agrifood firms emerge as participants in systemic transformations addressing global sustainability goals (cf. Florez *et al.*, 2022; Gupta *et al.*, 2020). For example, firms deploying digital platforms and data-driven tools foster accountability and transparency across the agri-food system (cf. Annosi *et al.*, 2020), driving interactions that transcend firm boundaries. Yet, this expanded role also intensifies the tension between short-term firm objectives and long-term system resilience. As digitainability links business and societal value, firms are increasingly tasked with aligning their strategies with interconnected, system-wide sustainability objectives (cf. Kump and Fikar, 2021).

Thus, digitainability sharpens the stakeholder-system divide by emphasizing the need for business alignment with broader social and environmental aims. This convergence of business and societal value challenges firms to evaluate how their relationships with diverse stakeholders impact the larger system, reinforcing the call for integrative frameworks that position firms as active participants in societal value creation. Valentinov and Iliopoulos (2024) contribute to this discourse by elaborating the concept of the stakeholder environment — a broad societal context shaped by the firm's stakeholder interactions. They suggest that impacts from stakeholder collaborations on this environment represent system-level effects, capturing how firm actions ripple through societal systems (*ibid.*). Drawing on distinctions between primary and secondary stakeholders, they argue that system-level impacts emerge through interactions with secondary stakeholders, while firm-level impacts stem from engagements with primary stakeholders. This perspective highlights that while firm-level interactions foster competitive advantage, engagements with secondary stakeholders bolster legitimacy within the stakeholder environment (cf. Jones *et al.*, 2018).

We concur with Valentinov and Iliopoulos (2024) that distinguishing between primary and secondary stakeholders and between value creation and legitimacy offers a foundation for bridging firm-level and system-level analyses in stakeholder theory. However, we contend that this framework does not fully account for value creation beyond the firm's relationships with primary stakeholders, especially in the agrifood digitainability context. As agribusiness firms increasingly participate in networked collaborations addressing global challenges, these distinctions blur. Both value creation and legitimacy arise across the entire stakeholder spectrum, indicating that interactions with secondary stakeholders can yield value, while engagements with primary stakeholders can enhance legitimacy. This observation underpins our own conceptual framework, developed in the following section.

3. Societal value creation in stakeholder theory: a conceptual framework

Our conceptual framework builds on Valentinov and Iliopoulos' (2024) reflections on the intersection of transaction cost economics and stakeholder theory. Valentinov and Iliopoulos highlight economic adaptation, a category that, while central to transaction cost economics, has received limited attention from stakeholder theorists. Drawing on the foundational distinction between autonomous and cooperative adaptation, Williamson (1991) explained how these two modes underpin, respectively, market and hierarchical governance in their pure forms. Autonomous adaptation involves the one-sided adjustment of economic actors to an unpredictable and often volatile environment, whereas cooperative adaptation entails the mutual coordination of interdependent actors who are acutely aware of their shared dependencies. Williamson's pivotal insight is that in a capitalist economy, autonomous adaptation — integral to market governance — proves insufficient in situations of mutual dependency that demand “elastic and adaptive” responses to “unanticipated disturbances” arising during contract execution (Williamson, 1991, p. 273). Such adaptive responses are thus the domain of cooperative adaptation.

Valentinov and Iliopoulos (2024) translate these adaptation types into two distinct forms of firm-stakeholder relationships. Cooperative adaptation corresponds to the firm's engagement with primary stakeholders — those directly involved in value creation through trust, shared objectives, and mutual benefit. Autonomous adaptation, by contrast, characterizes the firm's interaction with secondary stakeholders — groups not directly involved in value creation but essential to maintaining the firm's legitimacy within the broader stakeholder environment. By addressing the expectations of these dispersed secondary stakeholders, firms sustain alignment with societal norms, thereby reducing potential conflicts and reinforcing their public image. Valentinov and Iliopoulos' framework offers a pioneering conceptualization of the stakeholder environment in stakeholder theory, addressing the “stakeholder-system divide” (cf. Johnson-Cramer et al., 2022) and contributing to a fuller account of societal value creation.

While their framework is insightful, we argue that the rigid association of primary stakeholders with value creation and secondary stakeholders with legitimacy limits a comprehensive understanding of societal value creation. In response, our framework categorizes stakeholder collaborations across two dimensions — primary vs. secondary stakeholders and value creation vs. legitimacy — allowing for a nuanced perspective where primary stakeholder engagements can generate legitimacy, and secondary stakeholder interactions can produce tangible value. Through this lens, societal value creation becomes a multidimensional process that involves not only direct value for primary stakeholders but also the creation of broader social benefits and legitimacy for both stakeholder types. This four-dimensional model of stakeholder collaboration is presented in Table 1.

At the intersection of primary stakeholders and value creation, we identify Joint Value Creation as a component centered on creating mutual benefits with stakeholders directly tied to firm operations. For example, employee training initiatives improve skill levels and job satisfaction, driving productivity and innovation. Supplier partnerships, similarly, foster supply chain resilience through co-innovation. Parallel to this, the Operational Legitimacy component emerges from ethical practices in firm interactions with primary stakeholders. Adhering to fair labor practices and ethical sourcing reinforces the firm's accountability and trustworthiness, reducing reputational risks and supporting stakeholder loyalty and stable supplier relations.

Conversely, at the intersection of secondary stakeholders and the value creation dimension, we find Societal Value Creation — initiatives that contribute to the welfare of the broader community and foster systemic improvements. Community development programs, for instance, strengthen local infrastructure, while educational partnerships boost societal capacity, creating a skilled labor force and bolstering the local economy. Such value creation generates social resilience and cultivates a supportive external environment, albeit without

Table 1. Four components of stakeholder collaborations

	Value creation dimension	Legitimacy dimension
Primary stakeholders	<p>Joint value creation</p> <p>Concept: Directly involves primary stakeholders (e.g., employees, suppliers) in collaborative initiatives that enhance productivity, innovation, and mutual benefits.</p> <p>Examples: Employee development programs, co-innovation partnerships with suppliers.</p>	<p>Operational legitimacy</p> <p>Concept: Reinforces trust and accountability through ethical practices that sustain a responsible firm culture.</p> <p>Examples: Fair labor practices, ethical sourcing.</p>
Secondary stakeholders	<p>Societal value creation</p> <p>Concept: Benefits society through community-focused initiatives that extend beyond the firm's direct interests.</p> <p>Examples: Community development programs, educational partnerships.</p>	<p>Social legitimacy</p> <p>Concept: Builds reputation through responsible behavior aligned with societal expectations.</p> <p>Examples: Philanthropy, CSR initiatives, public relations.</p>

directly feeding into the firm's core operations. Finally, Social Legitimacy arises from secondary stakeholder interactions that enhance the firm's reputation through philanthropy and transparent public relations. These initiatives demonstrate the firm's commitment to social responsibility, aligning it with public expectations and supporting a long-term societal license to operate.

This framework thus clarifies how stakeholder engagement strategies that aim at both legitimacy and value creation can support not only the firm's operations but also foster societal well-being. By positioning these components as complementary, it addresses the historically skeptical view within stakeholder theory toward corporate social responsibility (CSR) (cf. Barney and Harrison, 2020; Dmytriiev *et al.*, 2021; Freeman *et al.*, 2010: Chapter 8). Critiques of CSR often stem from its perceived separation of ethics and business, rather than their integration. In line with Dmytriiev *et al.* (2021), who suggest that CSR operates from a societal rather than a business-focused perspective, we situate CSR activities within the Social Legitimacy component, emphasizing that such initiatives, while beneficial, largely remain at the periphery of the firm's core strategy.

At the same time, our framework delineates *societal value creation* as a distinct category, extending beyond the reactive, legitimacy-driven efforts typical of CSR. Unlike CSR initiatives, which primarily function as compliance or reputation management, societal value creation aims at proactive, transformative engagement with societal structures, contributing to long-term improvements in areas such as education, healthcare, and infrastructure. Unlike legitimacy-driven efforts, which often aim to neutralize opposition and satisfy stakeholder expectations, societal value creation pursues a deeper engagement with public welfare goals. This approach aligns business strategy with the firm's role as an agent of systemic change, generating value that transcends immediate corporate needs and builds a robust social foundation for sustainable success.

4. Empirical analysis

4.1 Methodology

For this study, we employed a longitudinal case study approach to examine how the implementation of digital technologies (DTs) influences the environment in which agricultural producers operate over time. In particular, we conducted interviews with corporate executives of the selected large-scale agroholding companies and representatives of their stakeholders, asking comparable questions at the beginning of the study in 2022 and following up by mid-December 2024. Due to martial law in Ukraine, all interviews were conducted online, with recordings made upon participants' consent. To enrich the insights obtained from the interviews, we supplemented the data with archival resources, including annual financial and sustainability reports, investor presentations, and information from company websites.

During the selection process, we specifically targeted agroholdings that rank among the largest and most transparent agricultural enterprises in Ukraine. Our focus was on companies that have made significant investments in the deployment of DTs across multiple facets of their operations. We sought firms implementing DTs not only in primary agricultural production but also in spheres surrounding production, such as land administration, human resource management, logistics, machinery and equipment, inventory management, strategic planning, and reporting processes.

To identify suitable candidates, we consulted various media sources alongside industry reports and consulting publications. This research initially yielded a shortlist of ten agroholdings that aligned with our selection criteria. However, following outreach efforts, only three companies agreed to participate in our interviews (refer to Table 2): Grain Alliance, Continental Farmers Group (CFG), and Astarta. The chosen agroholdings operate as joint stock companies with varying levels of foreign capital integration within their ownership structures and are ranked among Ukraine's top 25 agroholdings in terms of land use. Despite communication challenges posed by the ongoing Russian invasion of Ukraine, we additionally managed to engage with several stakeholders connected to these agroholdings including landowners, local community officials, small-scale farmers, suppliers, and other respondents.

Table 2. Characteristics of studied agroholdings

	Company name		
	Grain Alliance	Continental Farmers Group	Astarta
Managers interviewed	<ul style="list-style-type: none"> • Evgeniy Zaglada, Chief Financial Officer 	<ul style="list-style-type: none"> • Yevhen Korniienko, Head of Field Agronomic Monitoring Department • Nonna Shmidik, Head of PR and Social Projects 	<ul style="list-style-type: none"> • Nataliia Bogacheva, Director at AgriChain • Ruslan Trufanov, Head of Sales Department • Yuliya Bereshchenko, Sustainable Business Development and IR Director • Lilia Marachkanets, Head of Corporate Partnership and Communications Department
Other interviewed stakeholders	<ul style="list-style-type: none"> • Nazar Malyniak, CEO at SmartFarming, subcontractor providing land audit and land management systems • Yana Dnistrianska, Director at Charity Fund “Rozvytok sela” • Oleksandr Ilchenko, Secretary at Baryshivska village council 	<ul style="list-style-type: none"> • Mykola Yatskiv, Head of the Beeholders Union “Karpatka” • Volodymyr Danyliv, Head of the Beeholder Union “Pasichnyky Gusiatsynshchyny” • Olga Livel, Deputy Head of Khorostkivska Territorial Community, Ternopil Oblast 	<ul style="list-style-type: none"> • Andrii Marushkin, Project Lead at Vkursi Zemli, subcontractor providing land data and analytics • Stanislav Dzhus, Head of Globynska Territorial Community, Poltava Oblast
Land use 2022	57 000 hectares	195 000 hectares	220 000 hectares
Number of employees	1044 (as of 2021)	2400 (as of 2021)	6500 (as of 2022)
Revenues 2022	EUR 55 million	n.a.	EUR 510 million
Production portfolio (main crops or animal products)	<ul style="list-style-type: none"> • Corn • Soybeans • Sunflower • Winter wheat • Grain storage – 7 units, 330 000 tons • Cattle farming 	<ul style="list-style-type: none"> • Corn • Soybeans • Sunflower • Winter wheat • Grain storage – 474 500 tons, 5 elevators • Seed production – 420 tons per day • Potato – storage capacity 106 200 tons, 2 plants + potato processing plant 	<ul style="list-style-type: none"> • Crop production (wheat, corn, rapeseed, soya, sunflower); • Seed production – 2 plants; • Sugar production: No.1 producer in Ukraine with 250–500 kt of sugar production p.a.; • Cattle farming: No.1 producer of industrialized milk in Ukraine with 100 kt of milk production p.a. and 22 000 heads of cattle; • Soybean crushing: No.2 in soybean processing in Ukraine with a crushing capacity of 230 kt; • Bioenergy: designed daily capacity of 150 000 m3 of biogas

Table 2. Continued.

Major areas of DT application	<ul style="list-style-type: none"> • Crop production • Land management • Operational management (Enterprise Resource Planning) 	<ul style="list-style-type: none"> • Crop production • Land management • Machinery and equipment management 	<ul style="list-style-type: none"> • Crop production • Land management • Machinery and equipment management • Logistics
Stakeholders	<ul style="list-style-type: none"> • Local communities • Employees • University • Business partners • Local authorities • Investors • Society 	<ul style="list-style-type: none"> • Local communities • Employees • Investors • Local authorities • Academia • Society • Marginalized groups (internally displaced persons, unemployed) 	<ul style="list-style-type: none"> • Landowners • Local communities • Employees • Society • Investors • Local authorities • Marginalized groups (internally displaced and handicapped persons, females, etc.) • National authorities
Sustainability goals	<ul style="list-style-type: none"> • Reduction of soil exhaustion • Increase the share of renewable fuels 	<ul style="list-style-type: none"> • Reduction of soil exhaustion • Carbon farming/green economy 	<ul style="list-style-type: none"> • Organic farming

Thus, our study examines three agroholdings — Grain Alliance, CFG and Astarta — all of which deploy various DTs, including precision farming tools, drones, satellite imagery, and enterprise resource planning (ERP) systems, applied across different operational domains such as land management, crop production, logistics, and human resources. For instance, Grain Alliance integrates operational data into a unified management system to optimize resource use, while CFG digitizes its machinery fleet, using advanced technologies to monitor crop health and conditions. These DTs not only improve operational efficiency, productivity, and sustainability but also demonstrate the companies' commitment to innovations such as carbon farming that address broader environmental concerns.

During the first round of in-depth online interviews, respondents representing the agroholdings provided various examples of how the adoption of DTs is governed in their companies and which spillover effects it has also on the agroholdings' stakeholder environment. These cases were described in detail, offering valuable insights into the key effects of digitalization within the agroholdings and their broader ecosystem, including communities, stakeholders, employees, and contractors.

Based on the cases identified, we discovered that the DT implementation not only complements or strengthens agroholdings' relationships with existing stakeholders, such as landowners, customers, and employees. It also leads to new collaborations with a broader set of actors representing academia, non-subject ministries, other industries, and even competitors. Inspired by this finding, we decided to give a more comprehensive scrutiny to these stakeholders to better understand how their relationships with agroholdings can be incorporated into existing conceptual frameworks and what the effects of such DT-induced collaborations are.

Thus, we conducted in-depth interviews with these stakeholders and, where necessary, followed-up with the previously interviewed representatives of agroholdings. This ensured a structured and targeted approach and ultimately led to the differentiation between the primary and secondary stakeholders of agroholdings according to two key criteria: the type of infrastructure involved in the relationship, and the locus of impact of the relationship. More specifically, by looking at the infrastructure involved, we defined stakeholders as

secondary if an agroholding collaborated with them using a digital infrastructure which was not deployed in the agroholding's core production activities. As regards the locus of impact, we considered a stakeholder as secondary if a digital infrastructure shared by an agroholding benefited this stakeholder rather than the agroholding itself, and/or if the benefits of this relationship for an agroholding were less tangible than any other benefits generated by this relationship or the relationship between the agroholding and the other, primary stakeholder.

For example, CFG representatives highlighted their initiative of creating a Beekeepers' Map to prevent bee poisoning during the application of crop protection products. This led us to engage with beekeepers in CFG's operational areas to understand how the initiative functions in practice and to explore any additional benefits arising from it. Similarly, Astarta's support for SME development in the Hlobynska community of Ukraine prompted us to reach out to community leadership to assess the benefits of this collaboration. This approach ensured that our selection of respondents was grounded in real examples, enabling us to capture diverse perspectives on the interaction between agroholdings and their stakeholders.

The interviews also provided insights into how agroholdings identify the opportunities and needs for engagement with such secondary stakeholders. This identification process can be sometimes described as indirect, when agroholdings address such stakeholders via primary stakeholders. For example, agroholdings digitize the statements of incomes from rent payments for their land lessors (i.e. primary stakeholders), which speeds up and smoothes the land lessors' correspondence with rural community authorities (i.e. secondary stakeholders) regarding tax declarations and other bureaucratic matters. Yet, often, agroholding identify secondary stakeholders via direct engagement in CSR and community development activities. Just as most agroholdings in Ukraine, the studied companies have community development or landowner relationship departments within their structures. The task of these departments is to support physical and social infrastructure in the areas of agroholdings' operations to address two major issues: insecure land lease contracts and labor shortage.

This stakeholder identification process must be viewed in light of the recent lifting of public limitations on farmland ownership by legal entities and the moratorium on land sales in 2024, which has resulted in most large-scale agricultural operations in Ukraine being land lease-based. Since farmland ownership is highly fragmented with about 6 million rural landowners and 4 hectares per owner on average, agroholdings that normally farm dozens of thousands of hectares have to deal with a large number of land lessors/lease contracts. Thus, to avoid a massive simultaneous stepping-out of the lease contracts by land lessors for whatever reason, agroholdings are impelled to engage in "non-core" CSR activities, such as maintenance of infrastructure in the villages where their land lessors reside. Since agroholdings' hired employees live in the same villages and since there is a deficit of agricultural labor in Ukraine (exacerbated also by the Russian invasion), agroholdings' CSR activities target *also* own employees.

Our interviews with secondary stakeholders of agroholdings were conducted online given logistical challenges. Frequent blackouts in Ukraine, the geographic dispersion of stakeholders, and varying levels of availability for open discussions necessitated a flexible approach to communication. Despite these obstacles, the interviews provided valuable insights. The interviews with secondary stakeholders used a guideline developed based on the results of the interviews with the representatives of the three agroholdings studied here. Each interview was transcribed, summarized, and systematically processed to identify correlations with our existing findings. This analysis helped to verify previously made conclusions, ensuring a more comprehensive and evidence-based understanding of the interactions between agroholdings and their stakeholders.

5. Results

As shown in Table 3, our findings highlight that agroholdings' collaborations with primary stakeholders yield joint value creation, particularly through DTs. Grain Alliance, for example, enhances employee welfare and

Table 3. Stakeholder collaboration components of examined agroholdings

	Value creation	Legitimacy
Primary stakeholders	<p>Joint value creation:</p> <p>Examples include Grain Alliance’s training programs to enhance employee digital literacy, integrating them into precision farming. Continental Farmers Group, on the other hand, partners with suppliers to co-develop efficient, sustainable farming practices, leveraging digital platforms to drive innovation and resilience across the supply chain.</p>	<p>Operational legitimacy:</p> <p>Astarta’s adherence to ethical labor practices and transparent supply chain management reflects a commitment to core ethical standards, using DTs to monitor and report on fair labor conditions and ethical sourcing, securing trust from employees and consumers alike.</p>
Secondary stakeholders	<p>Societal value creation:</p> <p>Grain Alliance partners with local universities to advance agricultural education and training, helping develop a skilled rural workforce and contributing to regional innovation. Continental Farmers Group’s rural entrepreneurship initiatives — offering financial and advisory support to small businesses — support economic independence and resilience within local communities.</p>	<p>Social legitimacy:</p> <p>Astarta’s philanthropic support for local healthcare and education, alongside the public relations efforts by Grain Alliance and Astarta to ensure transparency in ESG practices, bolster the firms’ reputations and align their activities with societal expectations.</p>

operational efficiency by providing digital skills training to integrate them into precision farming operations. Similarly, Continental Farmers Group fosters innovation within its supply chain by co-developing sustainable practices with suppliers, enhancing competitiveness and resilience for both parties. Collaborations with primary stakeholders also reinforce operational legitimacy by ensuring adherence to ethical standards and societal norms. Astarta exemplifies this commitment through ethical labor practices and transparent supply chain initiatives, using DTs to monitor compliance and maintain a strong relationship with both its workforce and its consumer base.

Through collaborations with secondary stakeholders, agroholdings engage in societal value creation. For instance, Grain Alliance’s partnerships with universities to strengthen agricultural curricula benefit the local workforce and foster regional progress. Continental Farmers Group, meanwhile, supports rural entrepreneurship by assisting small businesses with financial and advisory services, directly contributing to community resilience and economic vitality. Agroholdings also secure social legitimacy through secondary stakeholder engagement. Astarta’s community support initiatives, funding for healthcare and education, and transparency efforts in public relations reinforce a positive public image and build goodwill. Grain Alliance, CFG and Astarta’s commitment to transparent ESG practices further strengthens their legitimacy within local communities and the broader public. Agroholdings’ initiatives promoting IT literacy and environmental awareness among rural populations additionally demonstrate how agroholdings contribute to societal objectives beyond business interests, aligning with stakeholder theory’s emphasis on respecting the interests of all stakeholders, regardless of formal contractual ties to the firm.

In line with the framework proposed by Valentinov and Iliopoulos (2024), we observe that these agroholdings engage with both primary and secondary stakeholders in ways that extend beyond their immediate business operations. Collaborations with primary stakeholders — including employees, suppliers, and local communities — are rooted in joint value creation, reflecting what Valentinov and Iliopoulos describe as cooperative adaptation. Beyond this, agroholdings collaborate extensively with secondary stakeholders, pursuing initiatives such as

supporting rural education, providing financial and advisory support to local start-ups, modernizing university curricula through partnerships, and working with NGOs to promote entrepreneurship and social development. These efforts reveal the agroholdings' commitment to improving Ukraine's institutional environment and maintaining legitimacy within their communities. By engaging with secondary stakeholders, the agroholdings also establish "licenses to operate" through activities that, following Valentinov and Iliopoulos, embody autonomous adaptation.

One illustrative example of autonomous adaptation is the agroholdings' use of communication tools, enabling rural communities to voice their needs and concerns directly. This engagement helps firms understand and respond to expectations from dispersed stakeholders, enhancing their legitimacy and mitigating potential conflicts. For example, Astarta is using a chatbot to help smallholder rural landowners who lease their land to Astarta. This chatbot processes landowners' requests and assists them in obtaining important documents, such as income proofs or land rental payment confirmations that can be used for tax purposes. The interviewed company managers emphasize that these landowners are crucial partners in their business ecosystem, and the digital tool helps them provide better service and support to these essential collaborators.

"Small landowners — our shareholders — are our partners and a part of our ecosystem, as we would not be able to work without them. We try to not only work with them, but also look deeper into their processes and offer tailor-made solutions for their needs. We implement these solutions by working in joint project groups," explains one of the Astarta managers.

"We have a clear policy of cooperation with stakeholders, and we update it annually. All the data is transparent and public, including contacts of our managers, so that the landowners could contact even top managers to receive the required information or support. This type of openness and low level of bureaucracy helps us to establish long-term reliable relationships with our stakeholders," says Evgeniy Zaglada of Grain Alliance.

Moreover, all studied agroholdings are using DTs for land cadaster and management, which is beneficial also to the companies' smallholder land lessors. The implementation of land management software offers multiple advantages, streamlining operations and reducing transaction costs associated with land lease agreements. By minimizing the need for frequent in-person meetings, physical document exchanges, and excessive communication, the software enhances overall efficiency.

This technological advancement has far-reaching positive impacts. In the long run, rural communities stand to gain significantly. The cost savings achieved through the use of this software allow companies like Astarta, Continental Farmers Group, and Grain Alliance to offer more competitive land rental rates to landowners. This increase in rental income for landowners translates to higher tax contributions, which in turn bolsters the financial resources of local communities. The importance of this economic boost cannot be overstated, particularly in the context of Ukraine's rural areas. Many of these regions face challenges due to aging physical infrastructure and underdeveloped social services. The additional funds generated through this more efficient system can play a crucial role in addressing these longstanding issues, potentially catalyzing improvements in community facilities and services.

Furthermore, the studied agroholdings are committed to sharing knowledge and digital solutions with smaller farmers, i.e., in essence, own competitors in the farmland market. Agroholdings' shared land management systems help small farms to successfully mitigate the risks associated with land use and prevent the loss of agricultural plots via unexpected landowners' withdrawals from land lease contracts.

"[...] a small agricultural company had such a risky land [...] that they could have lost it. Using our app, they digitized their lands, conducted an audit, inventory of contracts, etc., and eventually managed to minimize the risks of land use and stopped losing their land plots," comments an Astarta manager.

Other respondents support this finding via the following statements.

“The integration of data from open state registries [...] into Astarta’s land management system is a game-changer for smallholder farmers. By leveraging this data and making it accessible to the community members in the areas of operation, the holding empowers small agricultural producers to digitize their land assets, conduct audits, and optimize land lease agreements, reducing risks and inefficiencies. This approach not only improves the operational effectiveness of small farms but also strengthens their position within rural communities, ensuring long-term sustainability and fostering local development.” Andriy Marushkin, Project Lead at Vkursi Zemli (project name meaning in Ukrainian *In the Know about Land*).

“Grain Alliance has set a remarkable example in leveraging digital solutions for effective land management. By completing a full inventory of their land plots and lease agreements, they have not only organized critical data into a single, accessible interface but also identified and mitigated land-use risks. This level of transparency and efficiency is inspiring and transformative for smaller local farmers.” Nazar Malyniak, CEO at the SmartFarming company.

CFG has developed a collaborative approach to data sharing and analysis, too. The company utilizes advanced technologies such as drone and satellite monitoring to collect field data, which is then shared with a precision farming partner. This partner specializes in crop mapping and geospatial planning, providing valuable insights back to CFG based on their analysis. The partnership extends beyond a simple exchange of services. The precision farming company can leverage the data gathered from CFG’s monitoring technologies to offer agrotechnological advice to a wider client base. This includes medium-sized farmers, who may be considered competitors to CFG in the farmland market, as well as research institutions and public agencies.

This collaborative effort has consequentially evolved into a broader initiative known as The Continent of Innovations, an open partnership project that aims to foster cooperation within the agricultural community on agrotechnological issues. Through this platform, CFG openly shares its best practices and experiences gained from working with various digital technology and service providers. The Continent of Innovations serves as a forum for discussing agricultural innovations and enhancing expertise in agricultural production. It brings together farmers, input suppliers, and other stakeholders in the agricultural sector. The platform has become a valuable resource for the agricultural community, facilitating the exchange of experiences, publications, advice, and case studies from leading industry specialists.

Furthermore, the studied agroholdings address the problem of digital divide in rural areas by supporting education programs in digital literacy.

“We have the project called IT Education in Rural Areas that provides IT trainings to children and adults in rural areas. The education program for children includes, for example, visual programming in Scratch,” says one of the Astarta managers.

According to Astarta, some 1400 children have received training in programming while about 700 adults were trained in basic IT skills during the program.

Grain Alliance has also engaged with the issue of digital literacy in rural areas before the full-scale Russian invasion by donating computers and equipment to one of the local universities.

“Before the war, we provided essential equipment, funded road and infrastructure repairs, and equipped educational institutions with computers and other supplies. [...] The essential point is that we do not transfer money directly, just pay for the resources or services needed,” says Evgeniy Zaglada of Grain Alliance.

CFG explicitly leverages DTs to enhance its CSR initiatives and stakeholder engagement in its areas of operations. One notable project addresses the increasing issue of bee poisoning from agricultural chemicals. The company utilizes its unified platform to automatically alert beekeepers about planned crop protection applications through a dedicated app. This app also features a beekeeper's map created by CFG, allowing the 600 registered beekeepers to view nearby crop locations, potential hive placement sites, and competitor/neighbor positions. Both parties benefit from this tool: CFG gains insights into the local beekeeping population, enabling them to offer targeted support such as transportation, supplies, or hive construction assistance. Simultaneously, beekeepers receive valuable resources and information to sustain and grow their operations, as confirmed by one of the involved stakeholders:

“Collaboration with Continental Farmers Group serves as an example of effective interaction between farmers and beekeepers. Thanks to the implementation of the interactive tool ‘Beekeeper’s Map,’ we have access to up-to-date information about the sowing areas of nectar-producing crops, their blooming periods, and planned spraying activities. This enables us to respond promptly and protect bees from potential poisoning, which, in turn, enhances apiary productivity and honey quality.”
 – Volodymyr Danyliv, Head of the Beeholder Union “Pasichnyky Gusiatsynshchyny”

Another example of CFG’s digitainability efforts is the interactive Corporate Social Responsibility Map. This online tool allows users to view the company’s social investments and contributions at regional, district, or village levels and provides contact information for local managers to handle support requests from rural inhabitants.

Notably and unfortunately, the present developments in Ukraine cannot be studied outside of the context of the full-scale Russian invasion, which impacts also on the topic addressed in this paper. Beyond immediate physical damages, wartime conditions have reshaped operational procedures, emphasizing the need for digital resilience. Agroholdings have accelerated the adoption of mobile and offline-compatible digital solutions, ensuring that employees can access critical data and make real-time decisions despite unstable conditions.

“[...] we realized the necessity of having mobile versions of all software solutions, including offline capabilities, so people could continue working under any circumstances,” says a manager at Astarta.

This urgency has fueled a rapid expansion of satellite monitoring, where demand has surged. In 2022, Astarta completed its integration with Planet Labs, enhancing its ability to monitor fields remotely — a crucial adaptation in times of restricted access to certain territories. Astarta also collaborates with international tech firms, as seen in its partnership with the Japanese company Sagri, to apply satellite monitoring and AI to improve farming efficiency and environmental metrics.

Crucially, wartime hardships have transformed relationships among key stakeholders, reinforcing a culture of mutual support and flexibility. Customers, partners, and suppliers have adapted their business interactions, showing increased willingness to delay payments, offer financial relief, and collaborate on problem-solving to ensure continuity.

“Since the beginning of the war, the board has decided that we will keep paying salaries and rent payments even for those communities under occupation,” said a manager at Grain Alliance.

Additionally, agroholdings have played a key role in workforce adaptation. With mass displacement disrupting employment across Ukraine, CFG launched a retraining program for internally displaced persons (IDPs). The Continental Restart initiative provides affected professionals with opportunities to acquire new skills in agricultural engineering, gain practical experience, and secure employment in the sector.

Through these wartime adaptations, both primary and secondary stakeholders — from local communities and suppliers to displaced workers and industry partners — have forged stronger, more resilient networks, reinforcing the role of agriculture not only as an economic sector but as a pillar of national stability and recovery.

Thus, overall, our findings suggest that collaborations with secondary stakeholders often extend beyond the scope of legitimacy, moving into what we define as societal value creation. This shift represents a departure from compliance-driven efforts, as agroholdings actively generate both tangible and intangible benefits for society as a whole. In the Ukrainian context, societal value creation includes partnerships with universities to modernize agricultural curricula and provide hands-on training, initiatives that support not only future employees but also strengthen local knowledge systems and drive regional innovation. Further, agroholdings foster economic resilience and encourage socioeconomic growth within rural communities by offering financial and advisory support to local start-ups — investments often made with a focus on long-term community welfare rather than immediate financial returns.

To enhance community infrastructure, agroholdings also invest in projects such as healthcare and social facilities to improve living standards and build social cohesion. The recent development includes also agroholdings' engagement in humanitarian aid projects driven by the need to address the consequences of the ongoing Russian invasion of Ukraine. These projects include supplies of food products, purchase of medicine and medical equipment as well as support of so-called resilience centers initiated by the Ukrainian government (Astarta, 2024).

In summary, the agroholdings' collaborations exemplify a blended strategy that unifies business objectives with social welfare, blurring the traditional boundaries between value creation and legitimacy. Our findings support the view that societal value creation is not simply a peripheral CSR effort but an integral component of firm-stakeholder collaborations, demonstrating a proactive, transformative commitment to societal well-being and systemic development.

6. Contributions of the argument

The first key contribution of our argument lies in the development of a conceptual framework tailored to the agrifood digitainability landscape, where digital transformation and sustainability intersect dynamically and systemically. Our four-component framework — comprising joint value creation, operational legitimacy, societal value creation, and social legitimacy — effectively addresses these complexities, offering a robust tool for understanding how digital technologies facilitate systemic change through stakeholder collaboration. Philosophically, this framework navigates the “stakeholder-system divide” highlighted in stakeholder theory, advancing recent systems perspectives advocated by scholars such as Valentinov (2024), Freeman (2023) and Johnson-Cramer *et al.* (2022) by practically illustrating the relational view underpinning stakeholder theory (cf. Phillips *et al.*, 2019; Valentinov and Roth, 2024). The four components of our framework enable managers to harness digital technologies not only to drive operational efficiencies but to catalyze social and environmental impact. Notably, our framework helps managers integrate societal value creation as an essential part of the digital transformation agenda, encouraging the view of digital initiatives — such as precision farming, ERP systems, and communication platforms — not merely as operational tools but as means of addressing local community needs, including resource optimization, environmental sustainability, and education.

Our second contribution introduces *societal value creation* as a distinct dimension in stakeholder theory, foregrounding the role of secondary stakeholders. The term “secondary” might imply an indirect role in value creation, with secondary stakeholders perceived as peripheral to the firm's core objectives and primarily linked to legitimacy rather than direct value creation. By identifying societal value creation as an outcome of firm-stakeholder collaborations, we reposition secondary stakeholders as integral to long-term

strategy, reflecting their influence on the firm's socio-environmental impact. This reconceptualization challenges the implicit hierarchy between primary and secondary stakeholders, supporting the view that all stakeholders contribute to, and are impacted by, the firm's societal presence. By prioritizing societal value creation, firms signal that moral considerations and reciprocal responsibilities are essential in all stakeholder relationships. Within the agrifood sector, digital technologies empower firms to promote societal value creation through initiatives in education, community development, and environmental stewardship, where secondary stakeholders emerge as vital contributors to societal impact, not as peripheral entities managed solely for legitimacy. Practically, this elevated view of secondary stakeholders empowers firms to act as agents of systemic change, essential for building community resilience and economic stability and improving the quality of life in rural areas.

The third contribution of our argument is the practical guidance our framework offers managers on how both operational and social legitimacy can be promoted through digital tools. Managers gain clarity on enhancing transparency through digital reporting and communication, particularly with secondary stakeholders. ERP systems, for example, allow real-time insights into environmental metrics and supply chain transparency, while communication tools like chatbots and public digital dashboards keep communities informed and engaged, supporting social legitimacy by aligning with expectations for ethical, transparent practices. Furthermore, digital platforms can strengthen corporate responsibility programs. Managers can expand beyond traditional philanthropy, using online learning, virtual workshops, and community forums as spaces for active stakeholder engagement on topics such as corporate responsibility, environmental initiatives, and sustainability. This strategy reinforces public trust and positions the firm as a socially responsible actor.

A further contribution of our study lies in capturing the complexity of the relationship between primary and secondary stakeholders in transition economies, where institutional constraints reshape traditional stakeholder dynamics. In the Ukrainian agrifood sector, this distinction is blurred due to historical land tenure restrictions, gradual land market liberalization, and workforce shortages exacerbated by war. Even though we classify landowners and employees as primary stakeholders, agroholdings often engage in CSR activities unrelated to their core business — such as infrastructure maintenance, education programs, and community development — to secure legitimacy in their eyes. While these efforts support primary stakeholders, they remain legitimacy-driven, a function that Valentinov and Iliopoulos (2024) associate with secondary stakeholder management. Moreover, our findings update traditional stakeholder theory, which differentiates stakeholder management from CSR by emphasizing its integration with core business activities (cf. Dmytriiev *et al.*, 2021; Freeman *et al.*, 2010). Specifically, we show that in transition settings, legitimacy-building extends beyond secondary stakeholders, shaping engagements with primary stakeholders as well. By demonstrating how primary and secondary stakeholder roles intertwine, our study broadens the understanding of stakeholder interdependencies in complex institutional environments where relationships cannot be neatly classified.

Another key contribution of our argument is demonstrating that legitimacy and value creation are deeply interconnected, particularly in the digital transformation of stakeholder ecosystems. Our findings reveal that digital technologies can simultaneously serve both dimensions when deployed ethically and inclusively. This interconnection is evident in how agroholdings address digital inequalities in rural communities, where digital inclusion is a key legitimacy concern. Case studies of Astarta and Grain Alliance show that educational programs, digital training, and inclusive access to digital tools enhance workforce capabilities, improve employee retention, and increase agricultural efficiency — creating value. At the same time, these initiatives bolster legitimacy by fostering trust with rural communities, ensuring equitable digitalization, and aligning with sustainability goals. More broadly, while legitimacy is often seen as reactive — a means of meeting external expectations — our findings suggest that proactively embedding legitimacy concerns (e.g., data privacy, digital inclusion, governance transparency) into digital strategies creates long-term value. For example, agroholdings adopting transparent data-sharing policies, fair access to digital tools, and cybersecurity measures not only mitigate risks but also strengthen stakeholder trust. Thus, legitimacy and value creation form a dynamic continuum, rather than separate or opposing dimensions. Ethical digitalization

illustrates how legitimacy-focused initiatives (e.g., addressing digital exclusion) generate tangible value (e.g., operational efficiency, stakeholder loyalty), while value-driven initiatives (e.g., workforce digital training) simultaneously enhance legitimacy by reducing socio-economic disparities.

Finally, our framework encourages managers to develop clear metrics for societal value creation. These could include the number of individuals reached through digital training programs, improvements in community infrastructure, reductions in local unemployment due to entrepreneurial support, or environmental metrics like decreased resource consumption. Such metrics enable firms to measure, communicate, and refine the societal impact of their digital initiatives. By using digital platforms for impact reporting and feedback collection, firms can further enhance transparency and responsiveness. Online impact reports allow stakeholders to view the firm's societal contributions, while digital surveys or forums provide community feedback, making societal value creation a dynamic and community-responsive process. Managers who leverage these strategies can set industry standards through digital excellence, inspiring broader shifts toward sustainable practices within the agrifood sector. By publicly communicating these standards through industry partnerships or CSR publications, firms can lead by example, creating scalable impacts through public-private partnerships that promote digital literacy, environmental conservation, and rural development.

7. Conclusion

The swift adoption of digital technologies by Ukrainian agroholdings underscores the transformative potential of agrifood digitainability, where digital innovation and sustainability converge within agricultural practices to foster meaningful collaborations across a wide range of stakeholders, including employees, suppliers, local communities, educational institutions, and environmental organizations. To capture the complexity and diversity of these collaborations, we have developed a conceptual framework that categorizes firm-stakeholder relationships across two essential dimensions — primary versus secondary stakeholders and value creation versus legitimacy. This framework broadens our understanding of stakeholder relationships, revealing the systemic effects of digital engagement and allowing a clearer definition of societal value creation, particularly as it pertains to secondary stakeholders.

Our empirical analysis of Ukrainian agroholdings demonstrates that collaborative efforts with both primary and secondary stakeholders contribute to critical social and environmental outcomes essential to sustainable development, repositioning these stakeholders as integral elements of the firm's value creation process. The findings carry substantial implications for agrifood firms, policymakers, and industry stakeholders seeking to harmonize digital transformation with sustainable development goals. By expanding the concept of stakeholder collaboration, our study provides a new lens through which firms can view both primary and secondary stakeholders as co-creators of societal value. For managers, this shift involves recognizing that partnerships with secondary stakeholders — such as those with educational institutions, community development projects, and environmental conservation initiatives — are not merely acts of corporate social responsibility but strategic engagements that enhance resilience, reputation, and societal legitimacy. Embracing societal value creation as a core aspect of digital strategy empowers agrifood firms to position themselves as agents of sustainable change, setting industry benchmarks and contributing to a culture of innovation and inclusivity. This approach is particularly relevant in regions like Ukraine, where agricultural modernization and community welfare are closely intertwined, and where agrifood firms play a critical role in rural development.

The findings of this study also expand the understanding of firm-stakeholder interactions by demonstrating how digitally supported relationships can be built and maintained for mutually beneficial and firm boundary-spanning outcomes. Relationships involving digital technologies enable continuous and asynchronous communication, e.g., using online platforms or chatbots for feedback from local communities, which make engagement more ongoing and dynamic. This allows firms or, in our case, agroholdings to respond in real time to stakeholder

concerns. This also strengthens the firms' ability to engage with multiple stakeholders at scale, thus making it easier to integrate diverse stakeholders into strategic initiatives.

Our findings also show that large-scale agroholdings deliberately give up some power by giving stakeholders a stronger voice through data-sharing and transparency mechanisms. This reduces information asymmetry, allowing even small or traditionally marginalized stakeholders (e.g., small farmers, beekeepers) to exert influence. Furthermore, this helps to build trust through data transparency and predictive insights rather than just personal relationships. Last but not least, digitalization fosters rapid knowledge-sharing, allowing agroholdings and their stakeholders to access novel insights and co-develop solutions more efficiently.

We acknowledge the limitations of this study, which is based on three case studies from a single country and a relatively small set of in-depth interviews. Consequently, its broader applicability may be questioned. However, several factors suggest the findings extend beyond the immediate empirical setting. First, agroholding expansion is a global trend, particularly in transition and emerging economies such as Brazil, Russia, China, and parts of Africa. These entities face similar institutional challenges, including fragmented land ownership, regulatory uncertainties, and stakeholder legitimacy concerns. Given the well-documented adoption of digital tools by agroholdings for both production and operations (Chaddad and Valentinov, 2017), our insights into governance and digital transformation remain relevant for large farms leveraging digital platforms, precision farming, and enterprise resource planning systems to enhance stakeholder management, environmental accountability, and operational efficiency.

Furthermore, our study highlights commonalities between publicly traded and privately owned agroholdings, demonstrating that digital transformation practices are transferable across different enterprise types. The strategies of Astarta (a publicly listed company) and CFG (a privately held firm) show that digital technologies facilitate engagement beyond internal operations, fostering collaboration with communities, suppliers, and regulatory bodies. More broadly, our conceptual framework provides a generalizable lens for understanding stakeholder collaboration in agrifood digitainability, contributing to debates in stakeholder theory and agrifood sustainability. While our cases are rooted in Ukraine, the theoretical insights on stakeholder collaboration, digital technology adoption, and societal value creation offer valuable lessons for agribusiness practitioners and policymakers worldwide.

The present study opens multiple pathways for future research in stakeholder theory, agrifood digitainability, and broader sustainability studies. First, comparative analyses of societal value creation across different regions would shed light on how social, economic, and regulatory contexts shape the ways in which firms collaborate with stakeholders to achieve systemic benefits. Additionally, further research could focus on developing metrics and indicators that effectively measure societal value creation, addressing the challenge of quantifying indirect and long-term impacts on communities and ecosystems. Such research would offer valuable tools for firms and policymakers alike in assessing and optimizing their societal contributions.

Future studies might also explore the dynamics of secondary stakeholder engagement and its implications for firm reputation, social legitimacy, and broader industry influence. By examining the relational complexities between firms and secondary stakeholders, scholars can refine stakeholder theory to better reflect the moral and social intricacies of contemporary business. Finally, as digitalization continues to advance, research on the ethical dimensions of deploying digital technologies for stakeholder collaboration will be essential, particularly in areas like data privacy, access inequality, and the risk of a digital divide in rural communities. By pursuing these research directions, scholars and practitioners can continue to build on the framework we propose here, contributing to a more inclusive, resilient, and socially responsible approach to stakeholder collaboration within agrifood digitainability.

While our study provides insights into the short-term effects of digital transformation in Ukrainian agroholdings, a longer observation period is necessary to assess the sustainability and long-term societal impact of these

initiatives. The evolving nature of digital technologies, coupled with shifting socio-economic conditions, suggests that follow-up research beyond 2024 could offer deeper insights into the durability of stakeholder collaborations and the extent to which digital initiatives foster lasting rural development. Future studies could adopt an extended longitudinal approach to examine whether digital literacy programs, stakeholder engagement strategies, and governance mechanisms continue to yield benefits or encounter unforeseen challenges over time. Moreover, investigating how external forces — such as agricultural policy reforms, geopolitical developments, global market fluctuations, and climate change adaptation measures — influence the trajectory of digital transformation could provide a more comprehensive understanding of the dynamic interactions between firms, stakeholders, and broader institutional frameworks. Such research would not only enhance the empirical robustness of the stakeholder-system perspective but also offer actionable insights for policymakers and agribusiness leaders aiming to design resilient, future-proof digital strategies.

Acknowledgements

The authors declare that there is no conflict of interest. The authors used AI tools for the purposes of spellchecking and style improvement. The authors are grateful to the anonymous reviewers for their helpful comments.

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