RESR Revista de Economia e Sociologia Rural
ISSN 1806-9479
ARTICLE

Business models of rural properties: a systematic review of literature through the value cycle lens

Modelos de negócio em propriedades rurais: uma revisão sistemática de literatura sob a ótica do ciclo do valor

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How to cite: Paula Filho, A. F., & Meirelles, D. S. (2026). Business models of rural properties: a systematic review of literature through the value cycle lens. Revista de Economia e Sociologia Rural, 64, e295869. https://doi.org/10.1590/1806-9479.2026.295869en

Abstract: The processes of value creation, configuration, and appropriation underpin the dynamics of business models. However, this dynamic perspective is a recent topic and little explored in the literature, particularly from the perspective of its application in specific contexts, such as rural businesses. Inserted in a dynamic agricultural value chain, these businesses present significant challenges both from the perspective of value creation, through opportunity recognition, and value configuration, in terms of articulating these opportunities through the use of natural resources and the organization of activity governance. Furthermore, value appropriation, particularly due to the commodity nature of the business model, which hinders the definition of autonomous pricing criteria. The objective of this article is to identify what has been discussed in the academic literature on business models for rural properties from the perspective of the value cycle. The result is an analytical framework that encompasses the following aspects by dimension: i) Value Creation: differentiation, diversification, innovation, and sustainability; ii) Value Configuration: organization of the production chain and the governance structure (internal and external organizational boundaries); iii) Appropriation of value: economic dimension (financial cost/benefit), strategic (competitiveness), knowledge (innovation) and personal (culture and identity).

Keywords: business model, value, rural properties.

Resumo: Os processos de criação, configuração e apropriação do valor sustentam a dinâmica dos modelos de negócio. Todavia, essa visão dinâmica é tema recente e pouco explorado na literatura, principalmente do ponto de vista da aplicação em contextos específicos, como é o caso dos negócios rurais. Inseridos em uma cadeia de valor agrícola dinâmica, esses negócios apresentam desafios relevantes tanto do ponto de vista da criação do valor, por meio do reconhecimento de oportunidades, quanto da configuração do valor, em termos da articulação destas oportunidades a partir do uso de recursos naturais e organização da governança das atividades, bem como da apropriação do valor, sobretudo a natureza de commodity, que dificulta a definição de critérios autônomos de precificação. O objetivo deste artigo é identificar o que tem sido discutido na literatura acadêmica sobre modelos de negócio em propriedades rurais sob a ótica do ciclo do valor. Apresenta-se como resultado um framework analítico que contempla os seguintes aspectos por dimensão: i) Criação do Valor: diferenciação, diversificação, inovação e sustentabilidade; ii) Configuração do Valor: organização da cadeia produtiva e a estrutura de governança (limites organizacionais internos e externos); iii) Apropriação do valor: dimensão econômica (custo/benefício financeiros), estratégico (competitividade), conhecimento (inovação) e pessoal (cultura e identidade).

Palavras-chave: modelo de negócios, valor, propriedades rurais.

1 Introduction

Since the pioneering work of Osterwalder and Pigneur in 2010 on the business model construct, consolidated in the CANVAS template, it is evident that studies in this field are still in an evolutionary process—both from theoretical and empirical-methodological standpoints. On the theoretical front, there is a growing consensus around the "value tripod," meaning the business model is viewed as a system whose underlying logic lies in the creation, configuration, and appropriation of value (Foss & Saebi, 2017; Silva e Meirelles, 2019). According to Silva e Meirelles (2019), value creation involves discovering and recognizing opportunities through the use of resources and the development of capabilities, which lead to the delivery of superior value to customers, surpassing competing offerings. Value configuration consists of implementing opportunities through the articulation of resources and capabilities in the execution of processes and activities within the value chain, resulting in an efficient and effective system that supports the proposed superior value. In turn, value appropriation is a combination of strategic positioning to defend competitive advantage and learning through feedback from strategic decisions, involving adjustments from both the value creation and configuration perspectives. This dynamic view constitutes what the author refers to as the "value cycle."

Unlike the CANVAS template by Osterwalder & Pigneur (2010), the value cycle perspective provides insights into the problems and solutions involved in structuring a business model. Instead of dealing with output variables such as costs and revenues, the focus is on understanding the strategic process behind business model development (Silva e Meirelles & Souza Marques, 2024). However, this value cycle perspective has been little explored in the literature, especially in terms of its application in specific contexts, such as the agricultural sector. In a literature review conducted by Tell et al. (2016), the authors identified studies focused on the importance of the value chain and business models in the context of agri-food industry challenges as a whole, without specifically addressing the rural production unit.

Mapping the value cycle is extremely useful for understanding the viability and economic outcomes of rural enterprises, including from a sustainability perspective (Debastiani et al., 2020). Embedded in a dynamic agricultural value chain, these businesses face significant challenges both in terms of value creation—through opportunity recognition—and value configuration—in terms of articulating these opportunities through the use of natural resources and organizing governance activities, in which internal and external organizational boundaries are defined. Regarding value appropriation, the commodity nature of the sector, which hinders the definition of autonomous criteria for value capture decisions, is further complicated by sustainability challenges.

Given this context, this literature review is guided by the following research question: What has been discussed about the business model of rural properties from the perspective of the value cycle?

The objective of this article is to identify, within academic literature on business models, the discussions that adopt the value cycle perspective in the specific case of agricultural properties. Based on the systematic literature review method proposed by Okoli (2015), this study seeks to identify elements of the value cycle from the standpoint of value creation, configuration, and appropriation. As a result, an analytical framework of the value cycle supporting the business models of rural properties is presented.

The rationale for this work includes not only theoretical and empirical considerations but also a social perspective, considering the context of rural property management in Brazil. A recent study conducted by Embrapa revealed that rural producers would like to be better equipped to plan and manage their businesses, assess their production costs, and quantify their profits

(Bolfe et al., 2020). Predominantly family-run and lacking professional management, these businesses often develop at the mercy of environmental uncertainties. The solution to these difficulties involves identifying the foundations of business models through the lens of the value cycle—that is, by identifying the dimensions of value creation, configuration, and appropriation.

2 Theoretical Foundation

Before beginning the discussion on the literature about business models in rural properties, it is important to conceptually define rural property through the understanding of two key concepts: rural module, used by the federal government to classify different types of rural properties; and production system, adopted by EMBRAPA to capture the various forms of cultivation and livestock production in different regions of the country.

The rural module is considered a direct extension of the concept of a "family farm" (Costa & Paulino, 1992). It is a unit of measurement that encompasses both size (land area) and the nature of its use—namely, the way and conditions in which it is economically utilized. It varies depending on the area designated for each region and the characteristics of regional agricultural production (type of farming).

The production system reflects different uses of technology or combinations of production factors (land, capital, and labor), as well as distinct management processes. It applies to both plant and animal cultivation, also referred to as a livestock system. As defined by Hirakuri et al. (2012), the production system is composed of four subsystems: cropping, agricultural, and biome systems. The cropping system refers to common management practices and operational activities, including both plant and animal species (also called the livestock system). The agricultural system relates to the regional organization of various plant and/or animal production systems, their peculiarities and similarities. Lastly, the biome refers to the physical space in which the agricultural systems are situated, although it does not represent a set of agricultural systems.

Due to the varying degrees of complexity, Hirakuri et al. (2012) highlight the following production systems: a) Monoculture system: isolated cultivation in a given area over a specific period, usually one agricultural year. b) Crop succession system: seasonal repetition of a sequence of two plant species in the same production area over several years. c) Crop rotation system: ordered, cyclical (temporal), and seasonal rotation of different plant species in a specific production area. d) Polyculture system: cultivation of different crops in the same agricultural area during the same period. e) Integrated crop-livestock-forestry systems: cultivation and livestock production within the same plot (e.g., crop-livestock, crop-forest, livestock-forest, or crop-livestock-forest), aimed at maximizing land and production factor use and diversifying income.

Together, the concepts of rural module and production system provide an understanding of the relevant value dimensions that underpin a business model for rural properties—whether from the perspective of natural and technological resource use, or in terms of the nature of rural properties and their management practices.

Therefore, the definition of rural property guiding the following literature review is: the rural space where value is produced.

3 Methodology

The methodology for the literature review on business models in rural properties used in this article is the systematic type, also known as a Systematic Literature Review (SLR). As proposed by Okoli (2015), an SLR involves four basic steps: selection, search, extraction, and execution.

In the selection stage, the keywords from the research question were used, namely: (farm OR agribusiness) AND (value) AND (business model).

The search stage, carried out in February 2023, was conducted in the Web of Science, Scopus, and Google Scholar databases and considered the following criteria: publications from the year 2000 onward—given that relevant publications on the business model construct began appearing from that period—and keywords in the title, keywords, and abstract fields. As a result, 1,270 articles were identified: 78 in Web of Science, 168 in Scopus, and 1,024 in Google Scholar.

In the extraction stage, the identified articles were organized in a spreadsheet containing the following fields: title, author, year of publication, source of publication, and article abstract. In this phase, duplicate and non-scientific articles were removed, resulting in 712 selected articles.

Finally, in the execution phase of the SLR, which consists of identifying and categorizing the different themes addressed in the selected articles, articles that did not contain the keywords value and business model in the abstract were eliminated, considering that the article's focus is not the business model construct itself but rather the foundations of the value cycle in the specific context of rural properties.

Articles that linked business models to rural/agricultural properties or to the unit/production system were kept. For instance, articles focusing on urban farming were excluded. This filtering process resulted in a total of 57 articles selected for thematic analysis (see Chart 1).

Chart 1: Application of the SLR Protocol.

STAGE	CRITERIA	RESULTS
SELECTION	Research question	Keyword used: "business model" AND value AND farm OR agribusiness
SEARCH	Database: Web of Science, Scopus, and Google Scholar	Web of Science: 78 articles Scopus: 168 articles Google Scholar: 1024 articles
EXTRACTION	Exclusion of articles that did not address the theme of value in business models and rural properties and/or agribusiness	712 articles
EXECUTION	Consolidated library in Excel spreadsheet, excluding duplicate articles based on repeated titles. Categorization by subthemes.Reading of article abstracts to analyze and reflect on the research problem (articles that simultaneously discussed the keywords value and business model)	194 articles 57 articles

Source: prepared by the authors (2025).

The reading of the selected articles was based on understanding the following aspects of a scientific article's structure: theme, theoretical, empirical, and methodological approaches, and the nature of the research—whether quantitative, qualitative, or theoretical essay—as suggested by Creswell (2010). Based on these aspects, a content analysis was conducted following Bardin's (2011) guidelines, through which categories related to the dimensions of value creation, configuration, and appropriation were extracted, according to the model proposed by Silva e Meirelles (2019). The process was concluded with the conceptual grouping and visual construction of the model based on the relationships among the identified elements.

4 Results and Discussion

The discussion on business models in rural properties coincides with the broader rise of the topic in academic literature. The first identified article dates back to early 2008 (Vorley et al.,

2009). Subsequently, it was observed that 38.6% of the articles were published between 2015 and 2019. From 2020 to 2023, there was a significant increase in the number of publications, accounting for 59.6% of the articles focused on the topic. Among the five journals with the highest concentration of publications, all are directly related to sustainability. Notably, the journal *Sustainability* alone accounted for 15.8% of the selected publications.

From a theoretical perspective, the articles analyzed present a variety of approaches. While some adopt the Canvas model (Bunyasiri & Chatanavin, 2021; Partalidou et al., 2018; Prosperi et al., 2023), others explore a systemic view (Íñigo et al., 2017; Zott & Amit, 2017) or focus on innovation (Remane et al., 2017). Regarding methodological approaches, most studies are qualitative, with only two being quantitative (Niklas et al., 2022; Chemerys et al., 2019).

Among the published articles, the most cited are: Klerkx et al. (2019), with approximately 35% of citations; Donner et al. (2020), with 28%; and Barth et al. (2017), with 22%. Although these studies do not explicitly focus on the value cycle, they all address relevant dimensions of value creation and configuration. The article by Klerkx et al. (2019) explores the role of digital agriculture and new economic, commercial, and institutional arrangements both at the farm level and within the value chain and innovation system. Similarly, Donner et al. (2020) discuss business models from the perspective of various forms of value creation and configuration, emphasizing the importance of strategic partnerships and the ability to respond to changes in external conditions. These authors also propose a conceptual framework for sustainable business model innovation. However, the dimension of value appropriation is minimally explored in these studies.

The seminal work of Poláková et al. (2015) deserves special mention, as it proposes a specific business model definition for the Czech agri-industrial sector. It represents the first identified initiative that seeks to develop a typology of business models from the perspective of production systems, although it is limited to a single case study.

The following section presents the SLR results from the perspective of each dimension of the value cycle.

4.1 Business Model - Value Creation

The studies that specifically address the value creation dimension in the analysis of business models in rural properties include aspects related to differentiation, diversification, innovation, and sustainability. Many of these studies also discuss the effects of behavioral and environmental factors, highlighting barriers and public policy proposals (Chart 2).

Differentiation is analyzed from both the product and process perspectives, especially regarding productive efficiency. A standout in this group is the study by Calderón-Cabrera et al. (2022), focused on animal production, in which three business models are identified: i) the traditional model, characterized by offering undifferentiated animals, with no implementation of productive or commercial improvements, and a passive, stagnated approach to farming; ii) the intermediate model, showing greater willingness to adopt technical, commercial, and managerial knowledge, favored by higher education levels among producers; iii) the specialized model, with more advanced productive management, resulting in high value-added products.

Also noteworthy are studies analyzing sectoral differentiation in distinct geographical contexts. An example is Niklas et al. (2022), which compares wine production models in the Old World and the New World. Similarly relevant are the studies by Sharma et al. (2022) and Asikin et al. (2023), which explore, respectively, fruit production and livestock systems in Indonesia.

In the diversification domain, studies focusing on agritourism stand out—such as Sharma et al. (2022), which showed a significant increase in farmers' income through the identification of value chain gaps in Himalayan fruit production. From this analysis, the authors proposed a sustainable business model based on fruit wine production and the development of a horti-tourism concept centered on kiwi cultivation in the Uttarakhand region.

Also aligned with the diversification theme are the works of Alvarez et al. (2021), which examine dairy farm operations and highlight different value creation strategies, whether through a single product or more traditional models, varying according to local capacities and the productive context—posing potential challenges for public policy design.

In this line, the study by Saravia-Matus et al. (2018) is also noteworthy, discussing the importance of diversification and governance in food, feed, and biofuel value chains in Latin America. The authors analyze the effects of public policies on food and energy security, as well as economic impacts on the performance and consolidation of different players within the value chain.

In the innovation dimension, the selected articles mainly address digitalization and collaboration. Digitalization is discussed from the perspective of online information sharing among stakeholders and the search for agricultural products and logistics services online in the agribusiness sector (Vlachopoulou et al., 2021). However, Novikov et al. (2021) emphasize that digitalization in agricultural companies is only effective when supported by comprehensive strategic planning, including the development of an integrated digital business model.

In this context, significant contributions also come from studies on livestock, such as Asikin et al. (2020), and the food sector, including smart farming in viticulture (Sarri et al., 2020) and the use of smart networks in collaborative business models (Mahdad et al., 2022). These works highlight significant transformations in value creation and configuration processes, especially in food distribution, driven by e-commerce and the Internet of Things (IoT) (Nosratabadi et al., 2020).

Digital transformation impacts not only the company level but also the broader commercial and institutional arrangements (Klerkx et al., 2019), including technological innovation providers (Long et al., 2017). In this regard, Sivertsson & Tell (2015) identify barriers to innovation in agricultural business models, which may be linked to individual factors (such as attitudes, histories, and traditions), sectoral context, internal business environments, or government regulations.

Asikin et al. (2023) also offer guidance on how business models can be strengthened over time through the use of simple performance indicators and by linking models to innovation, considering the specific context of each production system. Business models that are developed and refined based on localized conditions offer a more targeted and agile path for improving performance in smallholder farming systems.

Among the group of authors who address sustainability, there are studies focused on environmental aspects, such as Carraresi & Bröring (2021), or social aspects, such as Vorley et al. (2009). Others take a more integrated approach, encompassing economic, social, and environmental dimensions (Khoruzhy et al., 2019; Rosenstock et al., 2020). Some studies are sector-specific, such as Hernandez-Aguilera et al. (2018) on the coffee value chain, or company segment-specific, such as Chemerys et al. (2019) on small agro-food businesses in Ukraine, and Zugravu et al. (2017), who propose a model for the development of integrated agriculture in conjunction with social services in Romania.

Bridging innovation and sustainability, Campos (2021) argue that there is a critical need to increase the success rate of innovation in agriculture and agri-food systems as a way to tackle so-called "wicked problems" affecting the sector, especially those related to climate change and sustainability.

Several studies propose analytical frameworks to assess the challenges of sustainable business model innovation in the agri-food sector, such as Barth et al. (2017). Some focus on business model solutions from the perspective of value creation and appropriation activities (Galardi et al., 2022), with particular emphasis on agritourism (Broccardo et al., 2017). Others propose innovations in business models, such as Hansson et al. (2023), which explore practices related to soil preservation, and Barth & Melin (2018), who recommend Green Lean frameworks. These combine traditional Lean principles with training sessions, farm visits, workshops, and advisory services to raise farmer awareness about the risks and benefits of adopting new business models. Genovese et al. (2017) highlight that such models heavily depend on partnerships and the ability to adapt to external changes.

As a significant contribution, Donner et al. (2020) also propose a typology of circular business models, covering the dimensions of value creation and configuration. The authors identified six main types: Biogas plant; Upcycling entrepreneurship; Environmental biorefinery; Agricultural cooperative; Agro-park; and Support structure

Chart 2: Business Models in Rural Properties - Aspects of Value Creation.

ASPECTS	AUTHOR (YEAR)	THEORETICAL AND EMPIRICAL APPROACH	METHODOLOGICAL APPROACH
Differentiation	Calderón-Cabrera et al. (2022)	Adoption and barriers to innovation, especially regarding scaling challenges	Qualitative Theoretical Essay
	Asikin et al. (2023)	Digital models in the food sector (Agri-Food Tech)	Qualitative Study
	Sharma et al. (2022)	Social, economic, and institutional dynamics of precision, digital, and smart agriculture (Agriculture 4.0)	Qualitative Study – Case Study
	Niklas et al. (2022)	Business models in reproductive biotechnology	Quantitative and Exploratory Study
Diversification	Alvarez et al. (2021)	Business models of innovative small-scale cattle producers and traders	Qualitative Theoretical Essay
	Saravia-Matus et al. (2018)	Development of digital business models in agricultural companies	Qualitative Study
Innovation	Sivertsson & Tell (2015)	Methodological proposal for managing wine farms	Qualitative Study – Case Study
	Long et al. (2017)	IoT in collaboration and innovation in agri-food ecosystems	Qualitative Study
	Campos (2021)	Business models and innovation (managerial skills and agricultural policy implications)	Qualitative Study – Case Study
	Vlachopoulou et al. (2021)	Business model innovation in food supply chains	Qualitative Study – Systematic Literature Review
	Klerkx et al. (2019)	Sustainability and business model innovation (complexity and maturity levels, theoretical and practical approaches)	Qualitative Study – Systematic Literature Review

Source: elaborated by the authors (2025).

Chart 2: Continued...

ASPECTS	AUTHOR (YEAR)	THEORETICAL AND EMPIRICAL APPROACH	METHODOLOGICAL APPROACH
	Khunmanee et al. (2019)	Lean Implementation Framework for small and medium farms to increase output and profit while maintaining environmental sustainability – "Green Lean" model	Qualitative Research – Case Study
	Asikin et al. (2020)	Success factors in Italian agritourism business models (structural, social, and economic features integrated with a sustainability approach)	Quantitative Research – Agritourism sample in an Italian region
	Novikov et al. (2021)	Business models can integrate sustainability goals into value creation and capture activities	Qualitative Research – Case Study
	Sarri et al. (2020)	Factors driving or hindering the start of business model innovation for sustainability	Qualitative Study – Interviews
	Mahdad et al. (2022)	Business models that create value from agricultural waste and by-products through the circular economy	Qualitative Study – Interviews
	Fernqvist et al. (2022)	Development of climate-smart, inclusive, and adaptive business models	Qualitative Study
	Nosratabadi et al. (2020)	Innovative and sustainable business models involving the coexistence of agro-silvo-pastoral and tourism activities	Qualitative Research – Case Study
Sustainability	Barth et al. (2017)	Business model supporting long-term partnerships between coffee buyers and smallholders, based on product quality	Qualitative Research – Case Study
	Barth & Melin (2018)	Redesigning business models to build new circular value chains	Qualitative Research – Case Study
	Broccardo et al. (2017)	Adoption and barriers to innovation, especially regarding scaling challenges	Qualitative Theoretical Essay
	Galardi et al. (2022)	Digital models in the food sector (Agri-Food Tech)	Qualitative Study
	Hansson et al. (2023)	Social, economic, and institutional dynamics of precision, digital, and smart agriculture (Agriculture 4.0)	Qualitative Study – Case Study
	Donner et al. (2020)	Business models in reproductive biotechnology	Quantitative and Exploratory Study
	Rosenstock et al. (2020)	Business models of innovative small-scale cattle producers and traders	Qualitative Theoretical Essay

Source: elaborated by the authors (2025).

Chart 2: Continued...

ASPECTS	AUTHOR (YEAR)	THEORETICAL AND EMPIRICAL APPROACH	METHODOLOGICAL APPROACH
Sustainability	Genovese et al. (2017)	Development of digital business models in agricultural companies	Qualitative Study
	Hernandez-Aguilera et al. (2018)	Methodological proposal for managing wine farms	Qualitative Study – Case Study
	Carraresi & Bröring (2021)	IoT in collaboration and innovation in agri-food ecosystems	Qualitative Study

Source: elaborated by the authors (2025).

4.2 Business Model - Value Configuration

The various types of studies focused on the value configuration dimension primarily highlight aspects related to production chain organization and governance structure (Chart 3). The studies on production chain organization cover different segments and geographic regions, such as: i) the pork chain in Vietnam, which combines strategic alliances and global value chain governance principles (Dong et al., 2020); ii) the banana chain in Thailand (Bunyasiri & Chatanavin, 2021); iii) the poultry chain in Senegal, which is still in a minimally organized stage. Boimah et al. (2022) point out that processing, distribution, and marketing pose significant health risks to consumers and recommend implementing cold chains and cutting poultry into pieces to improve food safety, product diversity, and accessibility; iv) the millet chain in India (Adekunle et al., 2018).

Regarding governance structure, a set of studies stands out for focusing on cooperative organization, such as the case of rural grain storage cooperatives analyzed by Filippi et al. (2020). This initiative is innovative in both reducing storage shortages and mitigating logistical bottlenecks, as well as enabling marketing strategies, cost reduction for small producers, and income generation—thus promoting market inclusion.

There are also several studies on sustainable business models, such as Karlsson et al. (2019), some focusing on the transformative learning process in organic farming (Tushar et al., 2018), and others examining institutions and strategies to explain and predict the emergence and evolution of new organizational forms (Dentoni et al., 2020).

In general sustainability-focused research, there is an emphasis on cooperation among multiple stakeholders in the ecosystem. A key example is the study by Monastyrnaya et al. (2017) on the pork value chain, which suggests that a sustainable business model requires cooperation among actors and stakeholders and is structured in three stages: (1) I dentifying sustainability needs; (2) Developing value chain practices aimed at delivering sustainable value, with responsibilities assigned to specific actors; (3) Formulating a sustainable value proposition. This model also allows for a simplified visual representation of sustainability in value chains, improving communication among actors and keeping stakeholders informed.

Another highlight is the study by Fiore et al. (2022) on the Farm-to-Fork strategy, aimed at climate neutrality and natural resource preservation. Sustainability here is analyzed systemically, involving all actors in the agri-food value chain (citizens, consumers, businesses) and public health policies.

Within the sustainability theme, there are also studies with a social dimension focus, such as De Boer et al. (2019), which explores more suitable models to promote inclusion of small farmers and overcome institutional voids.

Finally, some studies focus on value configuration in urban vertical farming, such as those by Martin & Bustamante (2021); Thomson (2022); and Biancone et al. (2022). However, these were excluded from this SLR because they do not align with the rural property definition adopted in this study.

Chart 3: Business Models in Rural Properties - Aspects of Value Configuration.

ASPECTS	AUTHOR (YEAR)	THEORETICAL AND EMPIRICAL APPROACH	METHODOLOGICAL APPROACH
Supply Chain Organization	Bunyasiri & Chatanavin (2021)	Contract farming business model	Qualitative Research – Interviews
	Karlsson et al. (2019)	Financial challenges and solutions (agricultural cooperative)	Qualitative Study – Action Research Approach
	De Boer et al. (2019)	Institutional voids and inclusion of small cocoa producers in the international chain through links with different business models in Bali, West Sumatra, and West Sulawesi	Qualitative Study – Multiple explanatory case studies
	Dentoni et al. (2020)	New organizational forms in Africa, Asia, Latin America, and Eastern Europe	Qualitative Research – Theoretical Essay based on 5 articles
	Monastyrnaya et al. (2017)	Model for developing sustainable business in the food chain	Qualitative Research – Case Study
	Tushar et al. (2018)	Transformative learning in sustainable business models	Qualitative Research – Case Study
	Boimah et al. (2022)	Post-production chain and business model solutions (Canvas method)	Qualitative Study – Interviews
	Adekunle et al. (2018)	Cluster analysis of the small millet value chain	Qualitative Research – Literature Data Analysis
	Filippi et al. (2020)	Rural grain storage cooperatives in Brazilian agribusiness (from the perspective of collective action theory)	Qualitative Study – Systematic Literature Review & Multiple Case Studies
Governance Structure	Dong et al. (2020)	Modernization of the pork value chain	Qualitative Research – Interviews, Primary and Secondary Data
	Fiore et al. (2022)	Climate and natural resource strategy (agri-food value chain and stakeholders)	Qualitative Research – Theoretical Essay
	Biancone et al. (2022)	Vertical farming (urban farms)	Qualitative Study

Source: elaborated by the authors (2025).

4.3 Business Models – Value Appropriation

Value appropriation involves various economic and financial aspects aimed at achieving superior performance, including several mechanisms for isolating competition (Mizik & Jacobson, 2003). It is also the stage where the value cycle concludes and where the foundations for its renewal are established (Silva e Meirelles, 2019). In this regard, it is worth highlighting studies that address value appropriation from the perspectives of growth (diversification) and innovation (Chart 4).

From a performance standpoint, most agricultural products are commodities, which leads to a trend toward land concentration. In this context, the studies by Arbeletche (2020) are significant, as they examine the effects of land concentration and the foreignization of production on local farmers—particularly family farmers, who tend to be the most affected. For this reason, as shown by Debastiani et al. (2020) in their study on commercial agriculture in Brazil, the main dimensions of financial viability for an agricultural business model are product prices and production costs.

Several forms of cost reduction are identified. One example is the creation of contract networks between producers and energy consumers, as proposed by Pereira Ribeiro et al. (2020), to enable a renewable energy compensation system. Another form is risk mitigation. In this case, the study by Gopane (2021) on rural properties in Kenya stands out, where the author evaluates how market information dissemination, combined with mobile money payment systems (m-money), helps mitigate price uncertainty in agricultural transactions and strengthens producers' commercial interactions.

Complementing this group, the study by Kolackova et al. (2017) presents a dynamic simulation of various possible scenarios for the development of small farmers. The proposed model is based on official secondary data sources and qualitative research with smallholders, reflecting the territorial, personal, and social specificities of this target group.

Chart 4: Business Models in Rural Properties - Aspects of Value Appropriation.

ASPECTS	AUTHOR (YEAR)	THEORETICAL AND EMPIRICAL APPROACH	METHODOLOGICAL APPROACH
Performance (Costs and Risk Management)	Debastiani et al. (2020)	Business model for Brazilian agriculture (integration of theory and practice)	Qualitative and Quantitative Research (531 producers and 30 in-depth interviews)
	Arbeletche (2020)	Impacts of forest and agricultural expansion in Uruguay (land concentration, foreignization of production, strategic changes)	Qualitative Research, literature and press review, and semi-structured interviews
	Pereira Ribeiro et al. (2020)	Brazil's institutional model for energy production through biomass	Qualitative Research
	Gopane (2021)	Risk mitigation in rural agricultural enterprises (mobile money system)	Quantitative Research
	Kolackova et al. (2017)	Dynamic simulation of scenarios (small farmers)	Qualitative Research – Case Study
	Mendoza et al. (2022)	Circular business models	Qualitative Study – Document Analysis
	Atewamba & Boimah (2017)	Concessionary forest business models (Africa)	Qualitative Research – Theoretical Study
Growth (Diversification)	Bertucci Ramos & Pedroso (2022)	Evolution of Brazilian agritechs (initial business model design and scalability)	Qualitative and Quantitative Research – Exploratory Study, In-depth Interviews
	Poláková et al. (2016)	Diversification strategy (assumptions, formulation, and implementation)	Qualitative Research – Case Study
	Miaris et al. (2024)	Values underlying farmers' strategic choices for business development	Qualitative Research – In-depth Interviews with 23 farmers in Sweden
Growth (Diversification)	Prosperi et al. (2023)	Growth of small rural properties (European System)	Qualitative and Quantitative Research

Source: elaborated by the authors (2025).

Chart 2: Continued...

ASPECTS	AUTHOR (YEAR)	THEORETICAL AND EMPIRICAL APPROACH	METHODOLOGICAL APPROACH
Innovation and Knowledge	Martin & Bustamante (2021)	New systems and agriculture in controlled environments, and product/service systems	Qualitative Research
	Thomson (2022)	Combined approach to business models, efficiency, and digitalization	Exploratory Study – Qualitative Research – Interviews
	Khunmanee et al. (2019)	Implementation of reproductive biotechnology in small ruminant farms	Quantitative Study

Source: elaborated by the authors (2025).

In the specific area of performance linked to environmental sustainability, the study by Mendoza et al. (2022) stands out. It examined 14 business models focused on wind energy within the context of a circular economy, considering business drivers, mechanisms of value creation, delivery, and capture, sustainability-related benefits and trade-offs, as well as associated industrial challenges and opportunities. Another important contribution is presented by Atewamba and Boimah (2017), who identified performance elements in forest-based business models, with a focus on sustainability and the rational use of natural resources.

Regarding growth, the study by Bertucci Ramos & Pedroso (2022) is notable for identifying five key elements in the transition to high-growth phases: (i) governance structure; (ii) resource allocation decisions; (iii) monitoring of strategic, tactical, and operational activities; (iv) promotion of human capital; and (v) validation of the business model. Each of these elements includes a set of performance indicators that demonstrate the scalability of the companies analyzed. The study also contributes to the advancement of knowledge about the organizational life cycle of agricultural startups, particularly in relation to factors that drive their sustainable expansion.

As a growth strategy, diversification is also emphasized in the works of Poláková et al. (2016); Miaris et al. (2024); and Prosperi et al. (2023), which explore different approaches to diversification and agricultural development. The study by Miaris et al. (2024) analyzes farmers' values associated with business development through on-farm diversification, comparing them to values related to non-diversified agricultural activities. Meanwhile, the work of Prosperi et al. (2023), through an innovative use of the Business Model Canvas tool, explores the diversity of small rural property business model architectures, highlighting their role in enhancing the resilience of agricultural systems—locally, regionally, and across other scales.

Within the same thematic axis, Khunmanee et al. (2019) argue that the implementation of reproductive biotechnology in small ruminant farms should be particularly directed toward younger, more educated farmers, aiming to improve the genetic value of livestock and support the sustainability of livelihoods. However, the authors emphasize that farm management plays a decisive role in the success of the proposed business models, and that differences in management styles must be considered when designing sustainable strategies for this target group.

4.4 Conceptual Model - a proposal

The aim of this article was to present a Systematic Literature Review (SLR) that encompasses the aspects of the value cycle, as proposed by Silva and Meirelles (2019), analyzed from the specific perspective of rural properties. As a result of the research, the following aspects related

to the Value Creation dimension were identified: differentiation, diversification, innovation, and sustainability. In the Value Configuration dimension, the central aspects relate to the organization of the production chain and the governance structure. Regarding Value Appropriation, the analysis included not only performance indicators related to cost and risk management, but also growth and innovation strategies, which are essential for the renewal of the value cycle.

Based on these elements, this article proposes a conceptual framework for analyzing business models in the specific context of rural properties, encompassing the three dimensions of the value cycle (Figure 1).

The Value Creation dimension includes: i) Resources: machinery, equipment, inputs, labor, and financial resources, which vary depending on the nature of the production system (Long et al., 2017; Nosratabadi et al., 2020; Novikov, Serdobintsev & Aleshina, 2021); ii) Competencies (technical and practical): individual capabilities, internal organization, partnerships, local culture, operating model, sales and management models (Carraresi & Bröring, 2021; Hansson et al., 2023; Barth & Melin, 2018); iii) Key Activities: refer to the primary and secondary activities of the value chain within the rural property context, such as input acquisition, production management, harvesting, logistics, and marketing. These elements align with the classification proposed by Debastiani et al. (2020), who group these activities into four categories: (a) operational activities; (b) commercial activities; (c) administrative and financial activities; (d) management activities. In addition to resources, competencies, and key activities, value creation also includes: iv) Customers (Broccardo et al., 2017); v) Partners (Hansson et al., 2023; Carraresi & Bröring, 2021); and vi) Products offered (Hernandez-Aguilera et al., 2018; Rosenstock et al., 2020).

In the rural property context, customers and partners include all actors involved in the production chain, including suppliers and support service providers (Alvarez et al., 2021). The value proposition offered to these customers is typically based on low-differentiation products. However, studies such as those by Calderón-Cabrera et al. (2022) on differentiation, Nosratabadi et al. (2020) on innovation, and Barth & Melin (2018) on sustainability suggest that there are real opportunities to enhance the value proposition of rural properties.

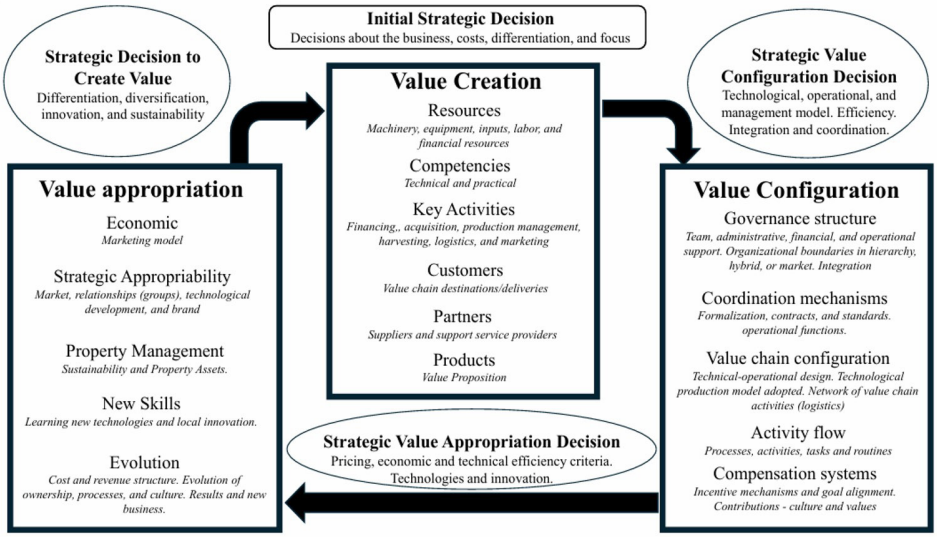

Figure 1: Conceptual Model - Business Model Value Cycle in Rural Properties.

Source: Elaborated by the authors (2025).

Following the cycle, based on decisions related to value creation, it is possible to identify various ways in which value is configured in the business model. This configuration, as defined by Silva e Meirelles (2019), corresponds to the implementation phase of opportunities through the articulation of resources and activities in the value chain, as well as the definition of internal and external organizational boundaries. As evidenced in the Systematic Literature Review (SLR), the configuration dimension is proposed to include: i) Governance structure, involving the design and arrangement of relationships throughout the chain (Boimah et al., 2022); ii) Coordination mechanisms, including formalization, contracts, and operational standards (Boimah et al., 2022); iii) Value chain configuration, involving integration, technology, and production control aimed at efficiency and resilience (Dong et al., 2020); iv) Activity flow, referring to the organization of processes and routines (Adekunle et al., 2018; Bunyasiri & Chatanavin, 2021); and v) Compensation systems, including incentive mechanisms and goal alignment (Karlsson et al., 2019).

In general, companies tend to organize cooperatively (Bunyasiri & Chatanavin, 2021; Boimah et al., 2022) and/or integrate into global value chains (Klerkx et al., 2019; Dong et al., 2020).

The conclusion of the value cycle is marked by strategic decisions regarding value appropriation, which, as defined by Silva e Meirelles (2019), includes both product commercialization models and growth strategies. Since rural properties make limited use of product differentiation, the SLR identified studies focused on cost-reduction and risk-mitigation strategies—through efficient resource management—as well as efforts to pursue sustainability and increase the value of the property.

Finally, value appropriation also encompasses strategies that enable the renewal of the value cycle, as proposed by Silva e Meirelles (2019), characterized by the pursuit of new markets and innovation. In this context, the studies by Alvarez et al. (2021), which address strategic diversification, and by Long et al. (2017), which explore digital transformation as a means of organizational innovation and the articulation of resources and capabilities through strategic collaborations, are particularly relevant. In the realm of innovation, the studies by Atewamba & Boimah (2017) and Poláková et al. (2016) also stand out, showing how the acquisition of technological skills and the promotion of innovation contribute to sustainability.

5 Conclusions

The objective of this study was to identify what has been discussed in the academic literature regarding business models, from the perspective of the value cycle, specifically applied to agricultural properties.

The literature analysis revealed that, although there are initiatives addressing specific facets of the value generation process, no studies were identified that systematically and simultaneously integrate the triad of value creation, configuration, and appropriation within business models focused on rural production units. As the main result, an analytical-conceptual framework was proposed, integrating the three dimensions of the value cycle—creation, configuration, and appropriation of value—within the context of rural property business models. The model clarifies how the value proposition of a rural property stems from the business's initial strategic decision and the strategic decisions made within each dimension of the value cycle.

In the value creation dimension, the elements—resources, competencies, key activities, customer segments, partners, and product/service design—are articulated to meet the constructs of differentiation, diversification, innovation, and sustainability. In the value configuration dimension, the conceptual model defines governance structure, coordination mechanisms, value chain configuration, activity flow, and compensation systems, aligning them

with the constructs of chain organization and governance. Finally, in the value appropriation dimension, the model asserts that the commercialization model, strategic appropriability, sustainable property management, development of new skills/learning, and business evolution enable economic, social, and environmental outcomes, while also supporting growth and innovation prospects.

However, it is important to highlight that this model still requires empirical validation across different territorial and socio-productive contexts to incorporate critiques and contributions that will strengthen its theoretical robustness, especially regarding the diversity of production systems and the characteristics of the agrarian space.

As a practical contribution, the proposed framework can serve as a strategic analysis tool for rural properties, as well as for the development of new ventures by actors involved in agri-food value chains, ranging from family farming to more complex forms of agribusiness. Additionally, given the geographic and environmental diversity of rural territories, it becomes possible to recognize distinct operational logics in value production, where elements such as innovation and sustainability play a central role. In this regard, public managers and policy makers may benefit from the proposed model to discuss more effective agricultural and social policies, tailored to local realities and the specific productive dynamics of rural regions.

Authors' contributions

AFPF: Conception/design of the study, Data collection, Analysis and interpretation, Writing of the manuscript. DSM: Conception/design of the study, Critical review.

Financial support:

Nothing to declare.

Conflicts of interest:

Nothing to declare.

Ethics approval:

Not applicable.

Data availability:

Research data is available upon request.

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Received: April 09, 2025;
Accepted: Outober 02, 2025
JEL Classification: M19
Associate Editor: Erlaine Binotto