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### BUILDING RESILIENT LOCAL FOOD SYSTEMS THROUGH COOPERATIVE ACTION: THE CASE OF *CONVERGE – COOPERATIVA INTEGRAL DA COVA DA BEIRA*

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Global food systems are increasingly strained by climate change, biodiversity loss and socio-economic instability, with rural regions disproportionately affected by depopulation and market vulnerability. In this context, cooperative and territorialised food initiatives are gaining relevance as pathways for resilience and sustainable biobusiness. This study aims to analyse how cooperative action can support the development of short food supply chains (SFSCs) and local food systems in rural contexts, using the case of Converge – Cooperativa Integral da Cova da Beira, a recently established integral cooperative in central Portugal.

Methodologically, the research adopts a qualitative case study design. The conceptual framework is grounded in cooperativism, social economy, integral cooperative models, food sovereignty, SFSCs, and sustainable logistics. The empirical component draws on document analysis (statutes, minutes, internal reports, project materials), participant observation conducted between 2022 and 2025, and internal operational data generated through the development of the Local Food System (SAL) initiative, including producer mapping, institutional demand estimates, and logistics planning.

Findings show that Converge is progressively transforming civic mobilisation into a structured organisational model capable of coordinating production, logistics, and participatory governance. Early outcomes indicate the feasibility of integrating small-scale producers into institutional markets through coordinated logistics, transparent pricing and municipal partnerships. However, the cooperative faces significant challenges related to scaling, cold-chain capacity, and route optimisation in a mountainous rural territory. The study contributes to debates on local food systems, grassroots innovation and sustainable territorial development by illustrating how integral cooperatives can function as laboratories for reterritorialising food production and strengthening regional resilience.

**Keywords:** local food systems; short food supply chains; integral cooperativism; social and solidarity economy; sustainable biobusiness; regional resilience; civic economy

#### INTRODUCTION

Food systems are central to current sustainability challenges and opportunities. Industrialised agrifood regimes rely on fossil fuels, long-distance logistics and input-intensive production, thereby generating greenhouse gas emissions, soil degradation and vulnerability to supply chain disruptions. These dynamics marginalise small producers and weaken territorial economies (IPES-Food, 2024; Sousa, Bragança, da Silva, & Oliveira, 2024). In response, a diversity of initiatives has arisen under the banner of alternative food networks and local food systems, seeking to re-embed food in place, reconnect producers and consumers, and reduce ecological footprints (Bindi & Belligian, 2023; Chiffolleau & Dourian, 2020; Fourat, Closson, Holzemer, & Hudon, 2020; Martinez et al., 2010; Renting, Marsden, & Banks, 2003; Schrager, 2018; Tregear, 2011; Vercher, 2022).

Cooperatives are pivotal organisational forms in this reconfiguration (Christian, Obi, Zantsi, Mdoda, & Jiba, 2024; Fazzi & Elsen, 2020; Holloway, Nicholson, Delgado, Staal, & Ehui, 2000). As part of the social economy, they democratise economic activity and align market practices with social and environmental objectives (Fonte & Cucco, 2017). Integral cooperatives go further by integrating production, distribution, consumption and governance into holistic structures that attempt to prefigure post-capitalist economies grounded in solidarity and reciprocity. Their emphasis on autonomy, self-provisioning and territorial regeneration resonates with agroecological transitions and with sufficiency-oriented (degrowth) visions of development (Candón Mena, 2012; Carlson, 2012; de Ormaechea Otalora, 2015; Trainer, 2018). Originating in Catalonia and adapted elsewhere, integral cooperatives integrate multiple sectors—food, housing, services, education, energy—under one participatory umbrella (Gonçalves, 2016). They seek systemic autonomy, blending markets with commons-based governance, and nurturing prosumer identities (Mateus & Olival, 2024). Their holistic scope allows internalisation of logistics and distribution challenges as collective responsibilities, a key advantage for alternative food networks and local food systems.

Local Food Systems and Short Food Supply Chains (SFSCs) provide a useful conceptual framework for analysing such initiatives. While local food systems highlight geographical proximity, SFSCs emphasise proximity,

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transparency, and trust, recognising that food markets are socially embedded and territorially situated. They are typically characterised by direct, or very few, intermediations between producers and consumers, often fostering greater transparency and a stronger place-based identity (Renting et al., 2003). The notion of embeddedness underscores how market exchanges are shaped by social relations, trust, and shared norms (Bindi & Belligiano, 2023; Chiffolleau, Millet-Amrani, Rossi, Rivera-Ferre, & Merino, 2019; Fourat et al., 2020; Martinez et al., 2010). Empirical evidence indicates that SFSCs can enhance farm incomes, support diversification, strengthen civic engagement, and mitigate environmental externalities (Martinez et al., 2010).

By shortening both physical distances and intermediations, SFSCs reduce food miles, retain value locally, and reinforce producer-consumer relations. At the same time, they face persistent challenges related to logistics, equitable access, and scalability (Fikar & Leithner, 2021; Martinez et al., 2010). Sustainable logistics and marketing, therefore emerge as critical to their long-term viability, with the literature frequently highlighting the tension between efficiency and values. Logistics remains a central bottleneck due to small production volumes, dispersed producers, and fluctuating demand. Innovations such as collaborative distribution, shared storage facilities, and digital platforms that aggregate orders while maintaining transparency and traceability can help address these barriers. Likewise, solidarity-based marketing approaches emphasising storytelling, terroir, and participatory notions of quality reinforce the social and cultural value of local food (Bindi & Belligiano, 2023). In rural and mountainous regions, infrastructural constraints intensify costs and coordination needs, making collective solutions all the more necessary.

In Portugal, cooperatives have undergone cycles of expansion and retrenchment since the 1970s, playing a central role in agrarian reform after 1974 (Ferreira, 2002; Namorado, 2009). Today, new forms of cooperativism are emerging, inspired by the Catalan experience, linking agroecology, SFSCs, and civic participation (Gonçalves, 2016; Mateus & Olival, 2024). Yet, research on integral cooperatives remains limited, particularly in the Portuguese context.

The case of *Converge – Cooperativa Integral da Cova da Beira*, located in a rural and mountainous region with traditions of small-scale farming, exemplifies this trend. Originating from the civic initiative *Cova da Beira Converge*, the cooperative advances principles of autonomy, self-sufficiency, and territorial regeneration, with food systems at the core of its strategy. By combining agricultural production, collaborative logistics, governance, and community engagement, Converge articulates a territorial strategy aimed at resilience and regional development.

This article analyses how Converge contributes to resilient local food systems through cooperative action. Conceptually, it draws on cooperative economics, food sovereignty, integral cooperativism, and SFSCs. The study positions integral cooperatives as laboratories for rethinking local economies, while also offering insights into sustainable biobusiness models, territorial valorisation, and the interface between academic reflection and practical action.

## RESEARCH METHODS

A qualitative case study design (Yin, 2009) was adopted to analyse the processes through which *Converge – Cooperativa Integral da Cova da Beira* develops a local food system grounded in cooperative action. This approach allows an in-depth examination of organisational dynamics, governance, logistics, and territorial partnerships within their real-world context.

A literature review provided the conceptual foundations for the study, drawing on cooperative economics, the social and solidarity economy, integral cooperative models, short food supply chains (SFSCs) and sustainable logistics. This framework guided both the formulation of the research aim and the development of deductive analytical categories.

The empirical component of the study draws on three complementary sources:

1. *Document analysis*: Documentary materials were examined to reconstruct the organisational trajectory and operational development of Converge. Sources include statutes, internal regulations, assembly minutes, newsletters, internal reports, project documents and public communications produced between 2020 and 2025.
2. *Participant observation (2022–2025)*: The researcher conducted sustained participant observation in assemblies, thematic working-group meetings and community markets and events. Fieldnotes captured decision-making practices, coordination mechanisms and interactions among producers, volunteers and institutional partners.
3. *Internal operational data from the Local Food System (SAL) initiative*: The cooperative generated operational data during the development of its Local Food System (SAL), including records of producer engagement, assessments of institutional food demand and logistics planning documents. These materials were treated as internal project documents and analysed to understand supply coordination and infrastructure design.

All sources were coded thematically using a hybrid deductive-inductive strategy. Deductive codes derived from the literature, while inductive codes emerged from fieldnotes and documents. The analysis was organised into five thematic axes reflecting the conceptual framework: (1) origin and evolution, (2) productive dimension, (3) construction of the local food system, (4) logistics and marketing innovation and (5) governance and civic participation.

The researcher's involvement in the civic movement since 2022 and later as a founding member of the cooperative provided privileged access but required reflexive procedures. Triangulation across documents, observations and internal operational data strengthened the credibility and coherence of the analysis.

## RESEARCH RESULTS AND DISCUSSION

This section presents the case study of *Converge – Cooperativa Integral da Cova da Beira* analysed through five thematic axes that mirror the conceptual framework. Cova da Beira is a rural and mountainous sub-region of central

Portugal encompassing the municipalities of Covilhã, Fundão, and Belmonte, with a combined population of around 73,891 inhabitants (FFMS, 2024a) and an extension of 1,375.56 km<sup>2</sup> (FFMS, 2024b). For each axis, empirical observations are connected to the literature to articulate a grounded and theoretically informed discussion.

### Origin and Evolution of Converge

Converge's roots lie in a collective movement of citizens and organisations, *Cova da Beira Converge*, initiated in 2020 by the Prout Research Institute Portugal (PRIP)<sup>2</sup> through a participatory diagnosis in the municipalities of Belmonte, Covilhã, and Fundão. The process brought together a socially diverse network, driven mainly by neo-rural residents—both national and international—alongside established local actors. In 2022, the partnership expanded to include the municipalities of Fundão, Covilhã, and Belmonte, as well as the University of Beira Interior, which provided institutional legitimacy and visibility, facilitating broader acceptance among regional stakeholders. Within this participatory framework, several thematic working groups were formed, including the Agriculture Working Group, where the idea of creating an integral cooperative first took shape.

Over the following years, the movement consolidated, bringing together more than 150 members and expanding its reach through public events, assemblies, and community initiatives. These activities strengthened civic participation, fostered trust among diverse actors, and contributed to building a shared vision for regional sustainability.

Inspired by the Catalan experience of integral cooperatives and drawing on the support and guidance of other Portuguese cooperative initiatives, this process culminated in the founding assembly of March 2025 and the legal registration in May 2025, translating civic mobilisation into an institutional framework capable of coordinating production, logistics, and governance. The cooperative's statutes emphasise autonomy, self-provisioning, territorial regeneration, and democratic participation. These principles align with the integral cooperative model described by Gonçalves (2016), which seeks to integrate multiple spheres of life under participatory governance. Converge represents an adaptation of this architecture to the Cova da Beira context, illustrating how civic-driven initiatives can generate new forms of cooperative economy rooted in territory and sustainability. This trajectory illustrates how grassroots niches can evolve into durable organisational forms, resonating with the “strategic niche management” perspective that highlights the consolidation of community or “grassroots” innovations into structured institutions (Seyfang & Smith, 2007).

At start-up, Converge – Cooperativa Integral da Cova da Beira was founded by 15 individuals and 5 organisations. During its initial months, all activities including governance, producer engagement, logistical planning, administrative work and community initiatives were carried out entirely through voluntary labour. This reliance on collective mobilisation reflects the cooperative's origins in a civic movement and its strong ethos of solidarity, autonomy and self-organisation.

As the initiative began to consolidate, the cooperative secured additional support. A donation from a philanthropic foundation in September and an employment-support measure (equivalent to a professional traineeship scheme) made it possible to hire the cooperative's first full-time remunerated staff member for a six-month period beginning in October 2025. This marked a significant transition toward greater organisational stability, enabling sustained coordination, administrative continuity and the development of the Local Food System (SAL), while volunteer contributions remained essential.

To ensure adequate financial and regulatory management during this stage, the cooperative also engaged a professional accountant on a service-contract basis. This provided crucial support for bookkeeping, budgeting, compliance and financial reporting, complementing the operational work of the newly hired staff member.

The cooperative is simultaneously entering a phase of membership growth. Three additional cooperants are currently in the process of joining, and personalised introductory sessions have been organised for prospective members to present the cooperative's principles, governance model and sectors of activity. These sessions aim to ensure informed participation and support meaningful integration into the cooperative community.

Alongside these developments, the cooperative has defined several planned sources of funding to support its operations and long-term sustainability. These include an administrative fee applied to the revenues generated through members' economic activities and to externally funded projects (typically between 5% and 9%), as well as annual or monthly membership dues. Additional project-based funding opportunities and partnerships are also being explored as part of the cooperative's strategy to secure stable resources for coordination, logistics and community initiatives.

Together, these elements illustrate Converge's gradual transition from a volunteer-led civic initiative into a more structured, professionally supported and financially viable organisation, without abandoning the participatory foundations that characterise integral cooperative models.

### Agricultural and Productive Dimension

The agricultural and productive dimension of Converge, although still at an early stage, has quickly assumed a central position within the cooperative, which encompasses nine sectors of activity. Rooted in the farming traditions of the Cova da Beira, this sector is focused on establishing partnerships with local farmers in the Cova da Beira region. It seeks to build a localised production system grounded in family farming and organic, small-scale agriculture, guided by the principles of agroecology. In practical terms, this includes—among other lines of work—the production of horticultural and fruit crops to supply public canteens and local institutions. Rather than prioritising scale or monocultural efficiency, *agroecology* emphasises ecological cycles, biodiversity, soil fertility, and the integration of traditional

<sup>2</sup> The Prout Research Institute Portugal (PRIP) is an association founded on the principles of the Progressive Utilization Theory (PROUT), formulated in 1959 by the philosopher, social thinker, and activist P.R. Sarkar. PROUT constitutes a socio-economic paradigm that advocates a cooperative and sustainable economic system oriented towards collective welfare.

knowledge with innovative practices (Chiffolleau, 2025; Duarte, Muñoz-Rojas, & Sacramento, 2025; Lembi, de Moraes, & Seixas, 2024; Pugas & Rover, 2021). Although still consolidating its farmer network, the cooperative's productive strategy illustrates how agroecology can guide the construction of place-based, sustainable food systems.

In this perspective, production is not only about yields but also about resilience, environmental stewardship, and social embeddedness. By organising producers around these principles, Converge seeks to reinforce territorial food sovereignty, secure fairer remuneration for smallholders, and regenerate local economies. Looking ahead, the agricultural section also aims to establish one or more recognised Producer Organisations (POs) to consolidate supply, strengthen bargaining power, professionalise joint marketing and quality management, and enable medium-term investment. As part of this trajectory, agriculture has become the first domain to move forward with a concrete project that transitions into the construction of a Local Food System.

### **Building Local Food Systems and Short Supply Chains**

Converge is currently implementing its Local Food System (*Sistema Alimentar Local – SAL da Cova da Beira*), designed to connect dispersed smallholders with regional consumption circuits. The project emerged from the Agriculture Working Group, which identified a structural barrier: many small producers operate at such limited scales that they lack organised accounts and cannot issue invoices, preventing schools, institutions, and businesses from buying their products.

In response, the *SAL Cova da Beira* project begins by targeting school and social solidarity institution canteens in the municipalities of Fundão, Covilhã, and Belmonte (covering 36 schools and 63 institutions), with future expansion to hotels, grocery stores, and ultimately, households. Early engagement with municipalities and catering companies revealed opportunities to comply with procurement clauses requiring local sourcing. A February 2025 benchmark indicated monthly needs of ~7 tonnes of vegetables and ~5 tonnes of fruit for a subset of schools—creating an anchor market for local produce. Meanwhile, Converge mapped demand, contacted local producers: of 30 surveyed, 13 expressed willingness to participate, representing the initial nucleus of the supply network.

Taken together, these steps are laying the groundwork for short food supply chains that aim to make exchanges more transparent and relational: origin, practices and prices would be disclosed upfront, and risks and rewards shared more evenly. For consumers, the anticipated benefits are traceability and participation; for producers, greater price predictability and clearer planning horizons. This prospective configuration aligns with market embeddedness (Fourat et al., 2020) and the territorial-development role of SFSCs (Renting et al., 2003). Accordingly, pricing is being framed beyond cost competition to foreground quality attributes (freshness, seasonality, agroecological practices) and social value (local employment, community regeneration), in line with social-economy marketing (Fonte & Cucco, 2017).

### **Logistics and Marketing Innovation**

Building on the Local Food System (SAL) outlined above, Converge is translating procurement opportunities into a concrete logistics and go-to-market architecture. The immediate operational task is to move from a dispersed set of smallholders to a coordinated, cold-chain-aware distribution system that can reliably supply institutional canteens while scaling to retail and household channels.

To that end, the cooperative is designing a concrete *hub-and-spoke* logistics model (Zäpfel & Wasner, 2002): producers deliver to designated drop-off nodes on fixed days; the cooperative consolidates, performs quality and traceability checks, and dispatches to schools and social institutions on weekly cycles aligned with menus. Municipal partners have indicated support—e.g., Fundão municipality signalling cold-storage space and a van; in Covilhã, a local development association and the municipality are exploring access to surplus cold storage—while the plan calls for one cold room and one logistics centre in Fundão and Covilhã (with later extension to Belmonte). Producers generally have their own transport, and routes will be consolidated to reduce empty runs. Work on regulatory and food-safety compliance is ongoing. Designing an efficient and sustainable transport system—integrating cold-chain capacity, route consolidation, and a reliable final delivery phase to schools and institutions—is, at this stage, the cooperative's foremost challenge, in line with Fikar & Leithner (2021), who identify logistics design as the cornerstone of resilient, low-impact SFSCs.

On the marketing side, institutional channels are complemented by solidarity markets and community events that sustain provenance storytelling and participatory quality standards (Bindi & Belliggiano, 2023). Emphasis on affordability with fair remuneration recognises value beyond price alone and strengthens producer-consumer embeddedness; yet sustained communication, volunteer management and customer support require stable coordination resources—illustrating the classic mission-market tension in grassroots food systems (Fonte & Cucco, 2017; Seyfang & Smith, 2007).

### **Governance and Civic Participation**

Converge's governance architecture builds directly on the participatory practices of the Cova da Beira Converge movement. Decision-making is organised through monthly assemblies open to members and thematic working groups (production, logistics, finance, community), with facilitation rotating among participants. This design reflects commons governance principles (Mateus & Olival, 2024; Ostrom, 1990): clearly defined membership, collective-choice arrangements, monitoring, and context-sensitive sanctions. Transparency and deliberation are prioritised, reinforcing accountability and shared ownership of outcomes.

At start-up, the cooperative brought together 15 individuals and 5 organisations as founders—including a farmers' association president, a university professor, and regional development agents. Through its roots in the Cova da Beira Converge movement, the cooperative mobilises and maintains an extended network of over 150 individuals and organisations. This socially diverse membership and connections, with strong representation of neo-rural residents alongside established actors, strengthens social capital and collective efficacy. However, it also introduces coordination

costs and dilemmas of scale: growth risks diluting participation and overburdening logistics, while small scale can limit economic viability. These trade-offs are widely discussed in grassroots innovation literature (Seyfang & Smith, 2007; Smith & Seyfang, 2013) and other literature about SFSCs (Chiffolleau & Dourian, 2020; Fikar & Leithner, 2021).

## CONCLUSIONS

This study examined how *Converge – Cooperativa Integral da Cova da Beira* contributes to building a resilient local food system in a rural and mountainous region of Portugal. The findings point to four principal contributions.

First, the cooperative demonstrates how grassroots civic mobilisation can evolve into a structured organisational model capable of coordinating production, logistics and participatory governance. The transition from an informal movement to an integral cooperative stands out as the most significant empirical finding, revealing the organisational capacity that emerges when community-driven initiatives formalise into cooperative structures.

Second, the agricultural and logistical components of the Local Food System (SAL) illustrate the potential of integrating small-scale, dispersed producers into institutional markets when supported by cooperative infrastructure. Even in its early months, the cooperative was able to initiate producer engagement and align emerging supply with institutional demand, highlighting the feasibility of constructing short food supply chains (SFSCs) through coordinated logistics and municipal partnerships.

Third, participatory governance—anchored in assemblies, working groups and deliberative practices—proves essential for building trust, enhancing transparency and mobilising a diverse membership. At the same time, these participatory arrangements generate coordination challenges and tensions typical of grassroots innovation processes, particularly in contexts marked by heterogeneous motivations and capacities.

Fourth, logistical constraints—including the need for cold-chain infrastructure, route optimisation and reliable last-mile delivery—remain the critical bottleneck for scaling and long-term viability. The ability to address these constraints will shape the cooperative's capacity to consolidate and expand the local food system.

Taken together, these findings show that *Converge* offers a compelling illustration of how integral cooperative models can advance resilient, territorially grounded food systems. By reterritorialising agricultural production, constructing trust-based SFSCs, innovating in logistics and marketing, and institutionalising participatory governance, the cooperative addresses vulnerabilities associated with globalised agrifood regimes while strengthening territorial resilience.

Several cross-cutting patterns emerge from the analysis. Participatory governance sustains legitimacy and collective ownership, yet introduces coordination costs as membership diversifies. A socially heterogeneous base—marked by strong neo-rural participation alongside established local actors—expands social capital but requires continuous facilitation. Moreover, the cooperative operates within the widely documented values–market tension: it must professionalise communications, quality assurance and customer support without compromising its civic mission. Finally, logistical capacity proves decisive, illustrating how organisational design, infrastructure and territorial partnerships co-determine the viability of SFSCs.

The case also carries important policy implications. These include investment in cooperative logistics infrastructure; supportive regulation for community markets and community-supported agriculture (CSA) schemes; training and advisory services in agroecology and collaborative logistics; and public procurement frameworks that prioritise local and sustainable food. The study contributes theoretically by bridging insights from the social economy, agroecology, SFSCs and grassroots innovation, and practically by outlining organisational strategies transferable to similar rural regions.

As a young and rapidly evolving initiative, *Converge* presents moving targets. While the single-case design limits statistical generalisation, analytical generalisation is pursued by linking the findings to relevant theories and comparable cases. Future research should develop comparative multi-case analyses, conduct longitudinal tracking of cooperative and SAL performance, and evaluate policy instruments that enable scaling without compromising democratic governance.

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