Innovative Multi-Actor Collaborations as Collective Actors and Institutionalized Spaces. The Case of Food Governance Transformation in Leuven (Belgium)

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The sustainable transformation of food systems is a particularly prolific field in which innovative multi-actor collaborations (IMACs) are being tested. Despite the growing literature on food governance and transformation of food systems, and on the principles of alternative food networks and local food strategies, little is known about how these are implemented and how multi-actor networks are coordinated and governed. Taking food as a lens, our objectives are to identify (1) how IMACs are established, (2) how collaboration is enacted within them, and (3) how governance innovations in these fields affect and are affected by broader urban governance innovation. Methodologically, we take a transdisciplinary action research approach, combining different groups of researchers with stakeholders involved in two on-going and interacting IMAC trajectories in Leuven (Belgium), i.e., the non-profit governmental organization Leuven2030 aiming to achieve climate-neutrality and the parallel collective development and implementation of the local food strategy "Food Connects." After reconstructing the trajectory of these IMACs from a governance perspective and discussing their current limitations, we realize that these IMACs perform both as collective actors and as institutionalized spaces for experimentation and transformative change. Our findings demonstrate that IMACs can be an empowering tool for local actors to challenge supra-local and systemic power imbalance and injustice; that networking and supra-local connections of urban actors can increase the legitimacy and outreach of transition processes, mobilization of resources and peer-learning; and that the consolidation of IMACs builds on previous sedimentations of experimentation and benefits from the impulse of political will in specific windows of opportunity. We conclude that the institutionalization of common objectives set within IMACs requires a parallel institutionalization of governance structures that enabled reaching them, which entails defining specific roles and responsibilities among actors and ensuring stable spaces for conflict, deliberation, and negotiation.

Keywords: governance innovation, innovative multi-actor collaboration, urban food governance, Leuven2030, food strategies, hybrid governance, facilitative leadership, multi-level governance

INTRODUCTION

Over the past decades there have been a proliferation of new food strategies, policies, alternative practices, and collaborations aiming at sustainably transforming food systems (Coulson and Sonnino, 2019; Vara-Sánchez et al., 2021). These initiatives are normally developed at the local level in contestation to the unsustainable, large-scale, internationalized, and industrialized food and agri-business sectors (Corsi et al., 2018; Tefft et al., 2020) and to conventional approaches and regulations regarding food systems. The latter are often siloed and articulated around individual components (e.g., agriculture, market, nutrition, etc.…) and regulated at supra-local levels according to a market logic—ignoring food systems' intrinsic social components and their direct contribution and affectation on the local level (Tefft et al., 2020). As such, innovative initiatives advocate for an integral and systemic approach to food systems, where social and environmental objectives are combined with economic ones (Mehmood and Parra, 2013). These initiatives advance what Hammelman et al. (2020) describe as *urban food governance*: "the establishment of rules, practices, and processes that structure the flows of power and control in the food system, from production and harvesting to consumption and waste management" (p. 72).

Despite the growing literature on food governance and transformation of food systems, much attention is paid to the principles of alternative food networks (AFNs) and local food strategies, while little is known about how these are implemented, especially how multi-actor networks play a role therein, and how these are coordinated and governed (Manganelli et al., 2020; Tefft et al., 2020; Castillo-Vysokolan, 2021; Vara-Sánchez et al., 2021). To fill this gap, our research takes food as a lens to further understand how (socially) innovative multi-actor collaborations (IMACs) contribute to governance innovation. Network governance, collaborative governance, and multi-actor experiments are gaining momentum, being promoted as the route to collectively addressing complex issues by mobilizing and integrating perspectives, efforts, and resources from different urban actors (Ansell and Gash, 2008; Ansell et al., 2020; Torfing et al., 2020). In this context, more and more IMACs are triggered and/or hosted by public administrations aiming to collectively build urban agendas and address complex urban challenges (Holemans et al., 2018; Puerari et al., 2018; Medina-García et al., 2021). Our objective is to explore how IMACs are established for the transformation of food systems, how collaboration is enacted within them and how food governance innovations affect and are affected by broader governance innovations at the urban level. For this, we reconstruct the trajectory of IMACs aiming to transform the food system in Leuven (Belgium) taking a governance perspective. We specifically focus on two on-going parallel and interacting IMAC trajectories in the city, i.e., the non-profit governmental organization Leuven2030 and the collective development and implementation of a Food Strategy.

The paper is structured as follows. Following the introduction, in section Theoretical Approach and Methodology we explain the theoretical framework guiding the research. We enrich our own conceptualization of IMACs with literatures on social innovation, institutionalism, hybrid governance, multi-level governance, and collaborative governance facilitative leadership. The section further explains our transdisciplinary action research trajectory, which combines the academic perspective from different types of researchers with the practical approach and interests of stakeholders from Leuven's food system. This "praxis oriented" and collaborative methodology relies on the combination of different types of knowledge and experiences from researchers, practitioners, and stakeholders to understand (and address) ongoing complex challenges while empowering the actors affected by the issues investigated (Fals Borda, 2006; Sonnino, 2010; Andersen and Bilfeldt, 2013; Moragues-Faus et al., 2015). In section The Emergence, Performance, and Interaction of IMACs Transforming Urban Food Governance in Leuven, we reconstruct the trajectory of the two IMACs intervening in the transformation of the food system in Leuven to further understand the collaboration process within each IMAC and the interactions between them and with urban governance innovation. We analyze the past and current state-of-affairs in the governance of Leuven2030 and the food strategy, identifying limitations in their current performance as IMACs. Under the light of our research we argue that: (1) IMACs play an important role in governance innovation in Leuven, and specifically in connection with food; (2) Current policies and plans related to the Food Strategy in Leuven are only there thanks to 25 years of experimentation both in urban governance and building an alternative food system; (3) The IMAC Leuven2030 has played a facilitative role in the governance of the sustainable transition in Leuven becoming an "IMAC within an IMAC" and has the potential to continue to perform as a collaborative platform; and (4) Leuven is now at a crossroads, in which the IMAC governing the Food Strategy is splitting, with different actors developing separate implementation trajectories and failing to ensure that all facilitative leadership roles in the IMAC are maintained. This is endangering the continuation of the history of IMACs in Leuven's food system as well as the achievement of the objectives collectively defined in Leuven's Food Strategy. Lastly, in section Conclusions we upgrade our learnings to the theoretical framework mobilized, elaborating on the tensions between local and supra-local levels, the agency of collective outcomes from IMACs as social innovations in themselves, the relevance of IMACs both as collective actors within other IMACs and as institutionalized spaces for experimentation and transformative change, and the relevance of institutionalization processes and facilitative roles in the performance and survival of IMACs.

THEORETICAL APPROACH AND METHODOLOGY

Building an Inter-disciplinary Analytical Framework

Understanding the Nature and Role of IMACs

Socially innovative multi-actor collaborations (IMACs), as conceptualized by Medina-García et al. (2021), refer to collaborations between various types of actors addressing complex urban challenges in socially innovative ways, and in

which public administrations participate or even play a triggering role. This definition stresses the socially innovative character of IMACs, and requires that multi-actor collaborations collectively address and solve human needs through solidarity-oriented changes in social and power relations in a way that challenges social exclusion in its broader sense and empowers the people directly affected by the issues at stake (Moulaert, 2010; Moulaert and MacCallum, 2019).

Avelino and Wittmayer (2016) define empowerment as the process by which individuals gain intrinsic motivation to engage in certain activities. They explain that this motivation "depends on the extent to which they have a sense of impact, competence, meaning, and choice regarding that activity" (p. 643). Oosterlynck et al. (2020) acknowledge that "empowerment links the goals of social innovation to the process it entails" (p. 222). That is why, when analyzing the impact of IMACs, we shall pay attention to the three levels of outcomes described by Crosby and Bryson (2010): (1) the consecution of goals; (2) the fact that multi-actor collaboration and joint action establish increasing interaction among actors, generating social capital and shifting power distribution; and (3) the long-term impact on governance resulting from the development of new institutions, norms and discourses.

Martinelli (2013) recommends not only analyzing the outcomes of IMACs, but also the triggers and the stages of transformation and institutionalization of the socially innovative processes that ensure that IMACs become durable. The tension between independence and creativity and the institutionalization of socially innovative initiatives is widely discussed in literature and focuses on the relevance of public actors and their relation to civil society actors (Vicari Haddock and Tornaghi, 2013). In this line, Medina-García et al. (2021) find that the emergence of IMACs is facilitated when (1) previous sedimentation of civil-public experimentation, (2) political will, and (3) champions within the local administration combine in specific "conflict" or "opportunity" moments around specific agendas. Supporting this premise, Martinelli (2013) defends that social innovation requires institutional(ized) spaces for experimentation and some level of public support for socially innovative initiatives that address issues related to public services and social justice. Additionally, she calls for a bigger and deeper engagement of public administrations to develop creative policy-making processes that combine or align "top-down engagement (in terms of funding, regulation and coordination) with bottom-up action and empowerment" (ibid. p. 356).

This debate is closely related to discussions about the complexities and intricate relations between agency and structure, or between socially innovative practices and the institutional framework in which they operate (Van den Broeck, 2011; Pradel et al., 2013; Van Den Broeck and Vervloesem, 2016; Paidakaki et al., 2020; Van den Broeck et al., 2020). On the one hand, existing institutional and legal frameworks already set rules and define the opportunities for social innovation—and IMACs—to happen. Meanwhile, IMACs become places for experimental governance, and their performance and innovative decision-making practices can produce changes in that framework and the broader governance landscape.

Multi-level governance adds an extra layer of complexity to the analysis of inter-relations between agency and structure (Jessop, 2004). While urban governance remains our main level of research, we zoom in to see how governance innovation is performed in specific initiatives and zoom out to understand the relations with regional, European and international policies and agendas—in order to understand how they condition the local level and individual initiatives, and how different levels influence each other. Multi-level governance helps us further understand the role and performance of state administrations and alternative practices, but also that of other umbrella or multi-scalar organizations that take a "scale-enabling function, providing local social innovations with important resources, in terms of networking, know-how, expertise, advocacy and lobbying" (Kazepov et al., 2020).

Internal Governance Dimensions (and Tensions) to Investigate IMACs

Literature on collaborative governance explains the complex and continuously evolving collaboration process and roles in IMACs. Bussu's framework to assess collaborative governance (Bussu, 2019) already makes explicit that drivers for collaboration conjugate individual and collective aspects. These include *incentives*, related to the interests and issues at stake for each individual actor, *inter-dependency* among urban actors, and the *(facilitative) leadership* that mobilizes the interactions among actors. Bussu (2019) also identifies four dimensions that affect further collaboration and power relations among actors: the *engagement process*, *shared motivation*, *legitimacy*, and *resources*. Indeed, together with their specific interests, logics and motivations, actors in IMACs also bring forward specific resources and/or the ability to mobilize further exogenous resources (Martinelli, 2013). Here, resources are contemplated from a broad perspective, including economic and material resources, but also immaterial ones like information, expertise, labor, legitimacy to the process, and capacity to lobby, mobilize other actors, or to secure relations with the multi-level governance structure (Ansell and Gash, 2008; Martinelli, 2013; Pradel et al., 2013; Craps et al., 2019; Kazepov et al., 2020). Roles in the collaboration can also be considered as resources, as long as they enable specific actors to reach certain resources or objectives (Avelino and Wittmayer, 2016).

Hybrid governance is also a key concept when analyzing relations and collaborations within IMACs, because it aims to unveil the logics, interests and organizational approaches followed by each actor involved in the collaboration and the combinations and compromises that are established therein (Oosterlynck and Cools, 2020; Galego et al., 2021). For our research, we take the four logics summarized by Manganelli et al. (2020): (1) top-down hierarchical organization, usually related to bureaucracy and state administrations; (2) market-oriented competition, related to economic interests; (3) solidarity relations, often found in bottom-up and social economy or third sector initiatives; and (4) networked governance. This Hybrid Governance Approach further describes three types of tension arising when logics coexist and interact either in moments of conflict or in empowering co-creation opportunities, including:

tensions related to organizational diversities; tensions related to resources mobilization, sharing, and allocation; and tensions related to institutional frameworks and arrangements (ibid.).

Governance tensions may appear both among actors in the IMAC and within each collective actor, and become even more pronounced as the boundaries among sectors and roles blur, and roles of individual and collective actors hybridize and multiply (Oosterlynck and Cools, 2020). To distill the complexity of actors and roles in IMACs, we comprehend Avelino and Wittmayer (2016) Multi-actor Perspective, which elaborates on the relations between individual and collective agency. Apart from defining four welfare actors that add nuance to the generally addressed "civil society" (i.e., state, market, community, and third sector), they classify actors in three levels of aggregation: sectors, organizational (collective) actors and individuals. From this perspective, although sectors can be considered urban actors, they "can also be seen as specific 'institutional contexts' or 'discursive fields' (Pesch, 2015) in which more specific collective or individual actors operate and with which they interact"; as such, they "can also be viewed as sites of struggle and/or cooperation between different individual actors" (ibid. p. 636).

The complex relations and dynamic interdependencies among actors in IMACs pose specific leadership challenges. Leadership in multi-actor collaborations is understood as key

"for embracing, empowering, and involving stakeholders and then mobilizing them to move collaboration forward" (Vangen and Huxham, 2003); it tends to be relational, collective and changing along time (Parés et al., 2017; Craps et al., 2019). Ansell and Gash (2008) define three roles for facilitative leadership for collaborative governance: *stewards* in charge of guaranteeing the integrity of the collaboration process; *mediators* who care for arbitration in tensions and nurturing relations among actors; and *catalysts* who help identify and implement "value-creating opportunities" (ibid. p. 7).

Ansell and Gash move a step forward by conceptualizing the organizations or institutions that facilitate and foster collaborative governance as *Collaborative Platforms*, which they define as "an organization or program with dedicated competences, institutions and resources for facilitating the creation, adaptation and success of multiple or ongoing collaborative projects or networks" (2018, 20). We believe this concept can be helpful to broaden the understanding of the role and performance of Leuven2030 in the larger context of governance innovation in Leuven.

Figure 1 summarizes the elements and dimensions of IMACs that frame our research, both regarding how they work and their relation with the broader governance landscape. These dimensions guide our analysis of the two ongoing and interacting IMACs in Leuven in section The Emergence, Performance, and
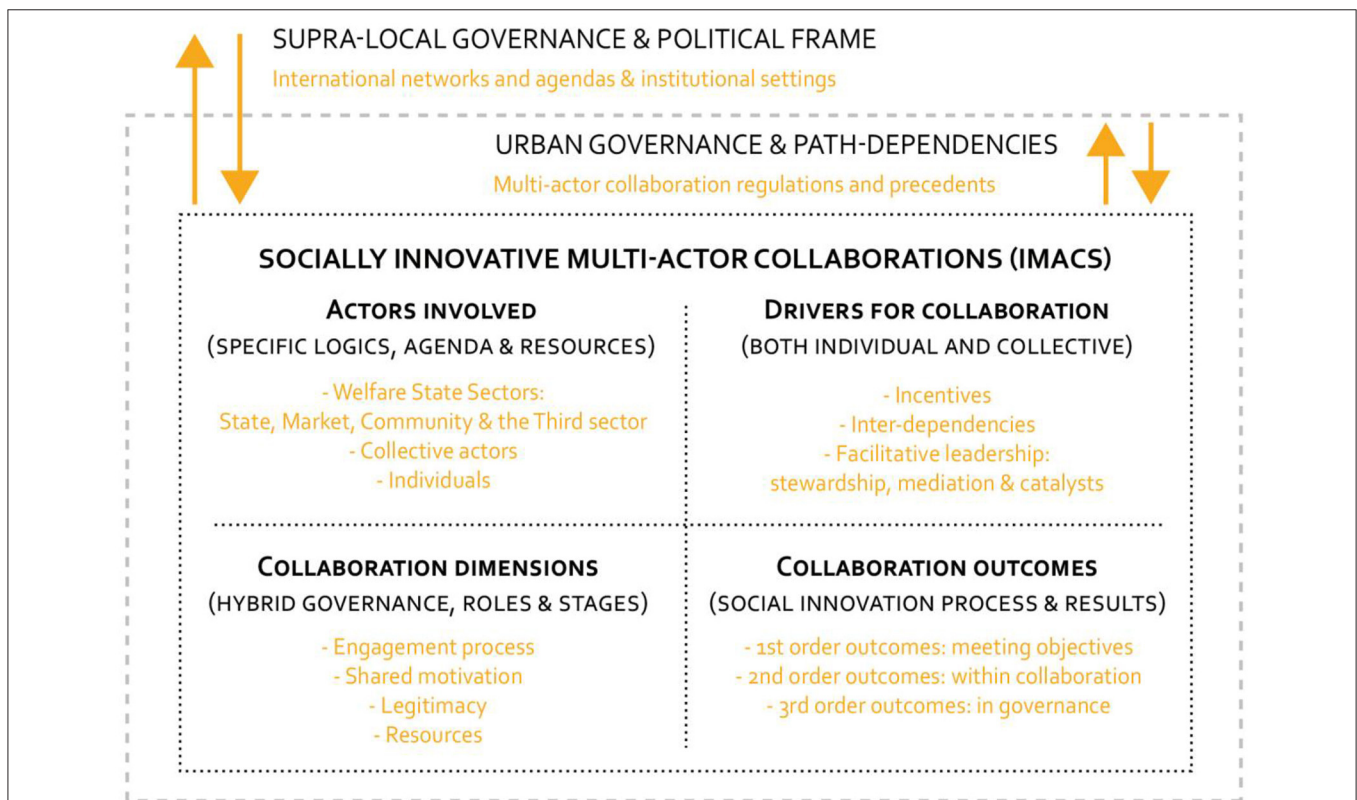

FIGURE 1 | Summary of multi-level governance inter-relations and internal dimensions of IMACs guiding our research. (Source: authors' elaboration inspired by literature from social innovation, collaborative governance, and facilitative leadership).

Interaction of IMACs Transforming Urban Food Governance in Leuven, and the discussion in section Conclusions.

Conducting Action Research to Explore Governance Innovation in Leuven's Food System

In order to investigate how IMACs work and what their role is in governance innovation, we focused on IMACs in the field of urban food governance. Specifically, we took the case of Leuven (Belgium), investigating two ongoing multi-actor collaborations presumed to be socially innovative and contributing to the governance of the transformation of the food system. These include: the multi-actor organization Leuven2030, founded in 2013 and internationally recognized for its innovative governance approach, and the collective development and implementation of a Food Strategy for the city initiated in 2017. Not only did we aim to reconstruct the trajectory and performance of these IMACs, but also to analyze the interactions among them and their role in the broader landscape of governance innovation in the city.

To study these cases, we took a transdisciplinary action research epistemological approach. In transdisciplinary action research, researchers get involved in the communities or ongoing initiatives that they aim to investigate and contribute to a process of collective reflection, joint problematization, and further multi-actor co-creation that is both valuable for the academic field and the daily practices of the initiatives involved (Fontan et al., 2013). Therefore, the action research process is in itself as valuable as the research outcomes, since it can "enrich academic knowledge but also contribute to develop connections, new ideas and practices among those involved in the field" (Konstantatos et al., 2013, 283). From this perspective, transdisciplinary action research becomes a social innovation in itself that problematizes the role of research and researchers and the relations between subjects and objects of research (Moulaert and MacCallum, 2019). Such an epistemological approach increases the complexity of the analysis, as it integrates the group of researchers and the action research process within the governance and co-creation trajectories in the city.

Given the COVID restrictions in 2020 and 2021, we built collaborative research combining different research trajectories and levels from KU Leuven, as well as different types of stakeholders. The core research team was composed by a PhD researcher, two Master's Thesis researchers (Castillo-Vysokolan, 2021; Nagarajan, 2021), and the Professor supervising their work. Together with two key stakeholders from practice they performed as the Editorial Board of the research, responsible for drafting the initial assumptions and work-plan based on documental research and exploratory interviews with six relevant actors in the IMACs investigated. Critical questions raised by the stakeholders regarding the evolution of these IMACs were taken as starting point for further research (see **Table 1**).

Joint-problematization and co-creation by the main researchers and stakeholders were combined with the work of two groups of students from the Department of Architecture at KU Leuven: the Institutional Aspects for Spatial Planning (IASP)

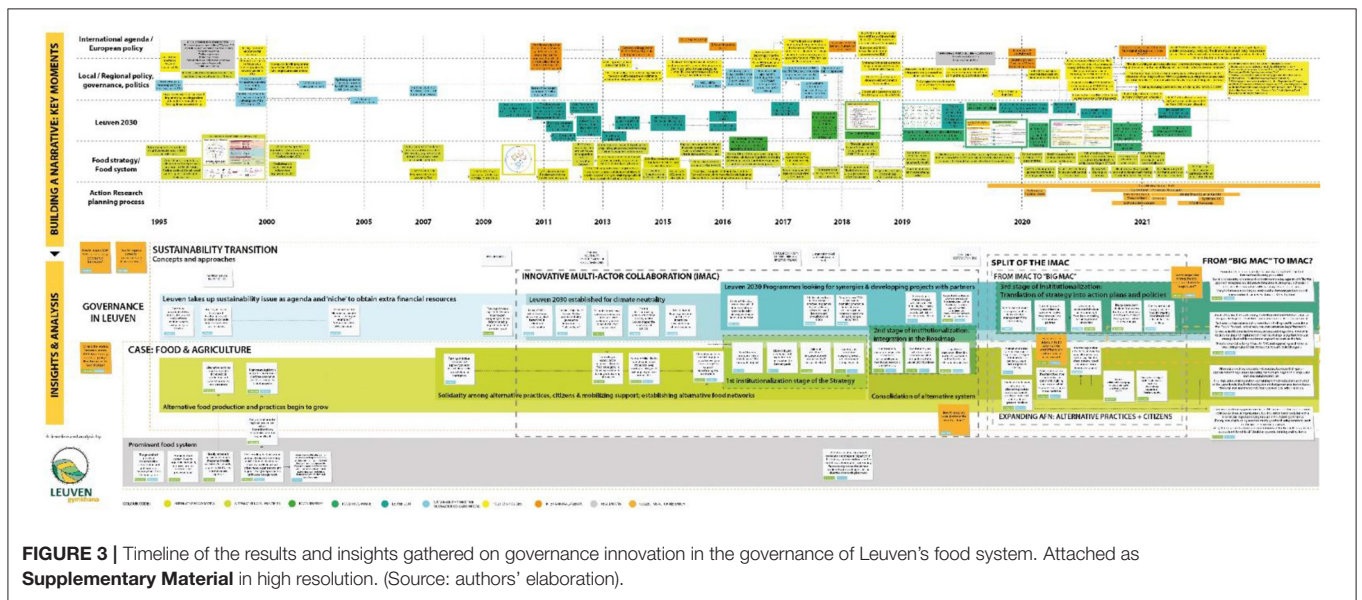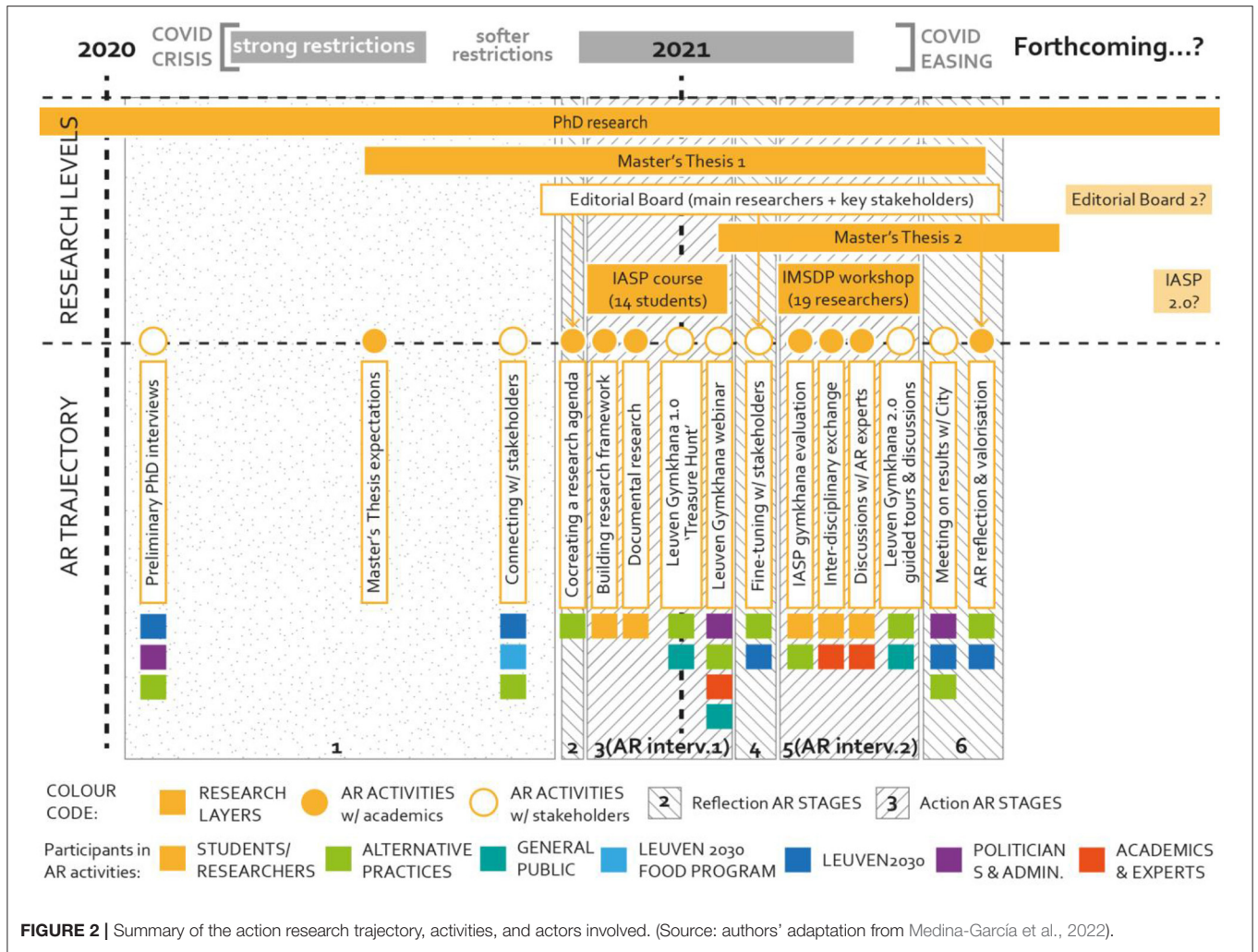**TABLE 1 |** Evolution of our assumptions from IASP to IMSDP as the research trajectory evolved.

1. Leuven2030 as an example of socially innovative multi-actor collaboration contributing to democratic innovation
   1. But… has experienced different stages and tensions with actors and logics.
2. The development of the Food policy "Leuven Connect" as a specific line of action under the umbrella of Leuven2030 to challenge the hypothesis
   1. But… not really, more complex than that and with different stages of institutionalization…
3. Nuances in the building of a narrative of the process are key to understand what is at stake now, and how we can interfere in the process through Action Research.

course taught in the Fall semester, and the International Module of Spatial Development and Planning (IMSDP) in Spring. They contributed with documental research, challenging the questions and learnings as they were developed, and collectively designing and implementing action research interventions in which a broader array of stakeholders from Leuven's food system were involved, i.e., citizens, experts and academics, alternative practices in the food system, coordinators from Leuven2030 and politicians and civil servants from the local administration. Such action research activities were framed under the common umbrella of the "Leuven Gymkhana" (https://leuvengymkhana. wordpress.com/), and comprised two interactive events (a treasure hunt and guided walking tours) and two debates (a webinar and a closure party), one in each semester. In addition, one of the Master's students interned within Leuven2030 between March and May 2021 as project assistant for the Food Program. This allowed her to engage with stakeholders and gain further knowledge on Leuven2030's internal governance and approaches. In this process, we developed research activities and collective outcomes, continuously translating our results to formats and languages for different target groups. These activities and outcomes (of which this paper is part of) served in themselves as artifacts to share and discuss our findings and move the collective reflection and knowledge co-creation further.

Figure 2 summarizes the participants, activities and stages of the action research trajectory. **Annex 1** contains the full list of interviews. We further reflect on our action research process, its limitations and learnings, in our methodological paper (Medina-García et al., 2022).

THE EMERGENCE, PERFORMANCE, AND INTERACTION OF IMACs TRANSFORMING URBAN FOOD GOVERNANCE IN LEUVEN

In our analysis of Leuven2030 and the governance of Leuven's Food Strategy, we explore the different actors and trajectories intervening in the governance of the food system in Leuven, learning about the internal processes that occur within IMACs and their relation and interference with broader urban governance transformations. A timeline (**Figure 3**) was developed both as a means to summarize and analyze our

FIGURE 2 | Summary of the action research trajectory, activities, and actors involved. (Source: authors' adaptation from Medina-García et al., 2022).

FIGURE 3 | Timeline of the results and insights gathered on governance innovation in the governance of Leuven's food system. Attached as **Supplementary Material** in high resolution. (Source: authors' elaboration).

results, as well as to enrich these through discussions held with stakeholders. The timeline shows the trajectory and interactions of the main actors intervening in urban food governance in Leuven (in the top half) and the insights on the IMACs and transformations of the food system from a governance point of view (in the bottom half). In this section, we elaborate the timeline and our learnings on governance innovation through IMACs in Leuven.

The Birth of Leuven2030 as an IMAC

Leuven2030, originally called "Leuven Klimaatneutraal 2030" (LKN2030), was born from conversations between the city of Leuven and the University of Leuven (KU Leuven). It was triggered in a lecture in December 2010, when engineer Dr. Peter Tom Jones raised the challenge of making Leuven a climate-neutral city (Vandevyvere et al., 2013). The conversation gained recognition as it was supported by key figures like Emeritus Prof. Jeff Roos, Prof. Koenraad Debackere and Leuven's Elderman of Environment, Mohamed Ridouani. Eventually, in May 2011 the Alderman signed a declaration of intent "to make Leuven climate neutral by 2030" and adhered to the EU Covenant of Mayors (ibid.). This commitment required the submission, within 2 years, of a Sustainable Energy and Climate Action Plan (SECAP) defining key actions to meet climate and energy targets and biannual progress reports (European Commission, 2021).

In December 2011, a collaboration agreement between the City and KU Leuven was signed (Rycken, 2013) to set up a 1-year multi-actor process to develop the report incorporating the local administration, businesses, civil society organizations, and knowledge institutions. The process was structured combining:

top-down or strategic input, bottom-up or operational input, and coordination among the two (Vandevyvere et al., 2013). This governance structure (**Figure 4**) aimed to (1) gather the necessary knowledge, (2) create the required social support both from decision-makers and implementers for advancing the actions proposed and, (3) achieve real policy impact (Rycken, 2013; Vandevyvere et al., 2013).

The coordination team was composed by a researcher from KU Leuven, an external project officer, and the Project management team, which was steered by a "guidance committee" with representatives from the Municipality and Leuven's key players and LKN founders. Their role was to combine the strategic input (gathered from 20 "system thinkers" from the founding partners composing the "G20 Transition Arena") and the operational input (gathered from experts composing the KU Leuven Metaforum and from 220 volunteer participants joining meetings and roundtables around six thematic cells, i.e., energy; built environment; mobility; agriculture and nature; consumption; and transition and participation) (Rycken, 2013; Vandevyvere et al., 2013). External consultants were hired to develop scenarios and reports and facilitate G20 meetings (Vandevyvere et al., 2013). This structure shows care for achieving the expected outcomes (catalyser role) and for the engagement of different actors and knowledges (stewardship) and the mediation and coordination among them (mediating role), thus caring for all facilitative roles.

Although citizens were consciously not widely involved in the development of the report (Rycken, 2013), the Netwerk Duurzaam Leuven [Leuven's Sustainable Network] contributed to integrating their perspective through the campaign "Leuven

FIGURE 4 | Coordination of the development of LKN's report. (Source: author's adaptation from Vandevyvere et al., 2013).
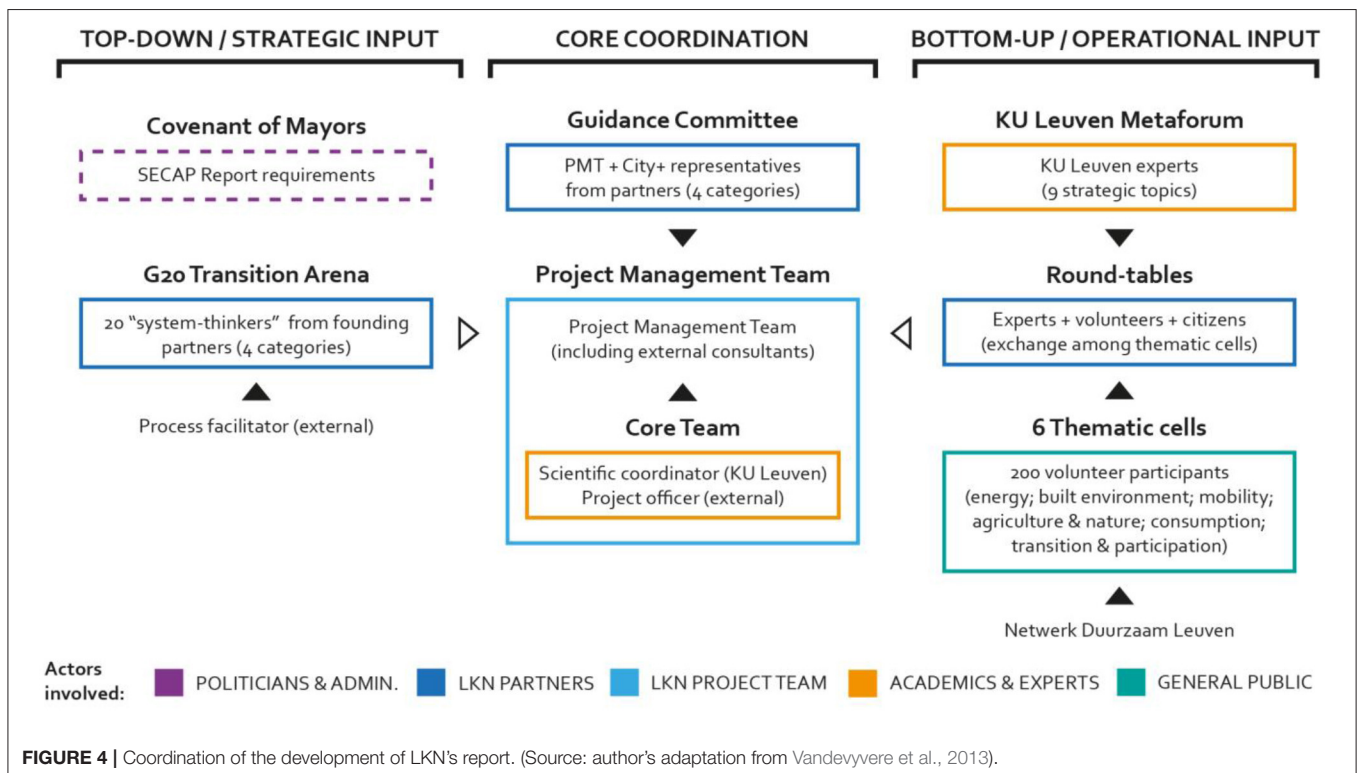
Overmorgen" [Leuven the day after tomorrow] organized in 2011. This initiative invited Leuven's residents to envision the city's future in terms of housing, mobility and food (Rycken, 2013). The Netwerk was also responsible for finding "Climate ambassadors," facilitating the work of the thematic cells in 2012, and organizing the "Climate Parliament" on 15 December 2012 (Nieuwsblad, 2012). The findings from these projects were included in the final scientific report as "action proposals."

In 2013, the scientific report was published (Vandevyvere et al., 2013), presenting the logic for calculating emissions and a list of feasible strategies and interventions to transition toward climate neutrality by 2030. The report also advised that its implementation be based on a "quadruple helix" multi-actor collaboration, instead of being prominently led by the city and subject to political periods and changes. Building on precedents of multi-actor platforms toward sustainability like the Platform Lokale Agenda21 and Netwerk Duurzaam Leuven (Castillo-Vysokolan, 2021), the report suggested a governance structure for an independent non-profit organization, i.e., LKN 2030, to anchor the incipient collaboration facilitated by the governance mechanisms established for the development of the report (Rycken, 2013; Vandevyvere et al., 2013)[1].

Many actors already mobilized in the Netwerk and the LKN project were amongst the 60 founding members that established LKN2030 in November 2013 as a non-profit governmental organization to facilitate multi-actor collaboration in achieving a carbon-neutral city by 2030. Under this "institutional formula," the local government does not own or coordinate the organization, but is only one of the actors supporting the collaboration with economic and other resources, such as ceasing space in the City Hall for Leuven2030's offices and labor force (see section Scope and Governance Readjustments Within Leuven2030: The Roadmap and Its Implementation Plan). Most funding comes from different partners, limiting the City's contribution to <50% in order to avoid any obligation of political representation.

LKN2030's internal governance structure (**Figure 5**) differed to the governance mechanisms established to develop the report. While the governance of the report had been based on a core technical team coordinating different types of knowledge gathered through more or less autonomous discussion arenas; in LKN2030, such structure was substituted by the legally-binding hierarchy of decision-making bodies characteristic of a non-profit organization. These included: the General Assembly (including all members of the organization), the Board of Directors (responsible for the organization's strategy), and the Executive Committee (responsible for the more operational management of the organization). The structure was complemented with a Project Team (PT) in charge of the implementation of the operational objectives, originally composed by two dedicated people that also participate in the Executive Committee, and a Board of Experts that advises both the Executive Committee and the PT. Although these last two bodies had been the core in the development of the

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[1] Read more on precedents of multi-actor collaborations in Leuven in Castillo-Vysokolan (2021).
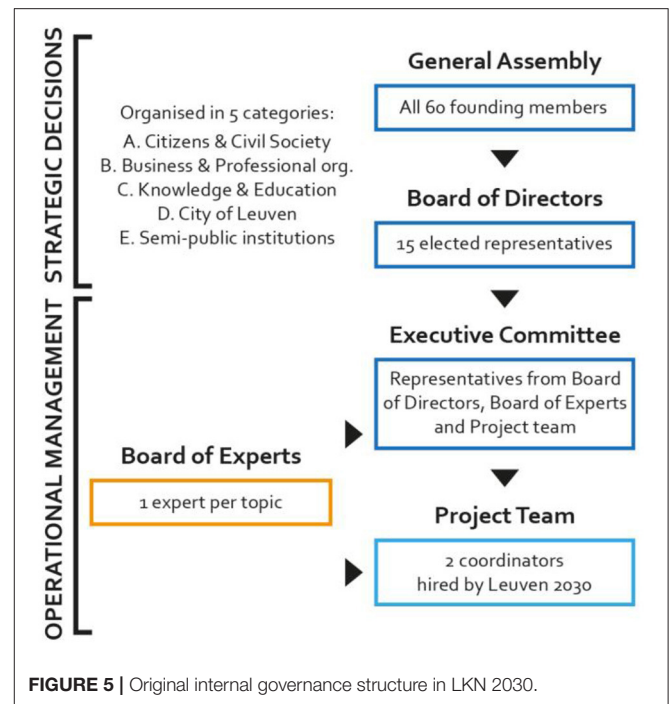

FIGURE 5 | Original internal governance structure in LKN 2030.

report, in LKN2030 they remained subject to the decisions of higher instances. The quadruple helix model was integrated by organizing participants in the General Assembly in five categories of urban actors [including (1) civil society and social organizations, (2) businesses, (3) knowledge institutions, (4) the city administration, and (5) (semi)public organizations] and by constituting the Board of Directors with three representatives from each category (Vandevyvere et al., 2013).

LKN2030's original objectives combined care for the multi-actor collaboration (steward and mediating roles) and support to meet sustainability results (catalyst). More specifically, these comprised: (1) enlarging the network by bringing in more people and companies and building bridges among them; (2) measuring and monitoring the reduction of carbon emissions and supporting partners in taking the right decisions in this respect; and (3) being a story-teller that spreads the actions and objectives of the network. Yet, some years later, they identified their limited reach in expanding the network and limited success in the implementation of their objectives. Subsequently, the professional story-telling agency Shaved Monkey was hired to reinvent LKN's outlook, baseline and strategy. They identified that focusing on "climate neutrality" was too technical for the general public and restricted their outreach; furthermore, they realized that the similarity between LKN's and the City's logos led to too close of an association between the bodies by stakeholders. Consequently, the organization was rebranded as Leuven2030, focusing more on building the future vision for the city, and a new communication strategy was presented in 2016. In addition, in 2017 the organization focused on implementing pilot projects and supporting community-building initiatives in obsolete buildings like Hal5 and Stel-Plaats. This new course of

action led to two important recognitions at the European level in 2018, which strengthened their credibility both inside and outside their network and brought economic resources to the organization: winner of the European Green Leaf and runner-up of the European i-Capital (European Commission, 2018; Stad Leuven, 2019)[2]. Today, more than 600 urban actors are part of the organization, the majority (500) being part of the category of civil society.

Transforming Leuven's Food System Through IMAC: The Birth of the Food Connects Strategy

The initial (limiting) "climate neutrality" approach of LKN's report recommended not to incorporate so-called "scope 3" emissions. These are emissions coming from goods generated elsewhere and consumed in Leuven. Consequently, Leuven2030's objectives fell short in addressing not-so-easy to measure aspects of the sustainability transition, such as the transformation of the food system (Kenis and Lievens, 2017). In reaction to this, a bottom-up process to develop a food strategy for Leuven was initiated in 2017 by three individuals connected to alternative food practices and organizations with a strong social profile. These organizations were the community supported agriculture (CSA) cooperative BoerEnCompagnie, the non-profit Regional Institute for Community Development (Riso Vlaams-Brabant) devoted to community development in Flanders, and the participation consultancy Levuur, which had already been involved in the development of Gent's food strategy "Gent en Garde." Their intention was to collectively create a policy that could make significant contributions to the situation of food in the city by establishing a framework of collaboration that could support and expand the alternative practices that were spreading in the city and address food injustices in Leuven. Rikolto, an international NGO promoting sustainable agriculture and food justice and a key participant in Gent's strategy, was looking for ways to mobilize a similar process in Leuven and so joined from the beginning.

To involve as many actors from Leuven's food system as possible in the discussions and build broad consensus, the initiators reached out to Leuven2030's coordinators. The latter facilitated the process with Levuur and increased the outreach of the process by engaging their network of partners. To coordinate the co-creation process, a steering group was activated, composed by the initiators of the strategy, Leuven2030's coordinators and civil servants. This group was responsible for preparing working sessions, documenting results and eventually drafting the final document (Castillo-Vysokolan, 2021)[3]. Through multiple meetings and workshops, and interaction moments with City administrators, the strategy "Voeding Verbindt" [Food Connects] was framed with 7 objectives (**Table 2**), and published

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[2]Leuven2030's innovative governance approach to addressing the sustainable transition would eventually earn them the European iCapital in 2020 (European Commission, 2020).

[3]See more on the composition and work of the stirring committee and the drafting process in Castillo-Vysokolan (2021).

TABLE 2 | Strategic objectives in Leuven's Food Strategy Voeding Verbindt (Food Connects).

1. Promoting healthy and sustainable food
2. Bringing consumers and producers closer together
3. Giving space to sustainable food production
4. Investing in sustainable agriculture
5. Making sustainable food products accessible to all
6. Preventing food loss and re-use of surpluses
7. Stimulating innovation for sustainable agriculture and food

in 2018 (Leuven 2030 et al., 2018) with the input of 120 citizens and about 80 organizations (Levuur, 2018).

According to participants of the process, the release of the strategy occurred during a tricky time—just before the local elections, when the Socialist party lost its absolute majority. Also, its leader Louis Tobback, who had been the mayor for more than 20 years (1995–2018), was succeeded by Mohamed Ridouani, the former Elderman of Sustainability. Yet, the strategy gained support from the new coalition (formed by the Socialist party, which had been engaged in the drafting process, and the Green Party, also very motivated to start working on the strategy). Furthermore, the new Elderman of Sustainability from the Green Party, David Dessers, took two key political decisions that showed political support to the strategy: the inclusion of food and agriculture as a part of sustainability competences, in contrast to previous legislatures in which agriculture was viewed from a purely economic perspective, and the transformation of the former "advisory board of agriculture" into the "Food and Agriculture Board" (VLAR). Also, in October 2020, Leuven became signatory of the Milan Urban Food Policy Pact, an international agreement, framework and network of cities committed to developing local food strategies (Milan Urban Food Policy Pact, 2015).

These decisions reinforced the socially innovative nature of the process of development of Leuven's Food Strategy, in which small and alternative actors of the food system—normally left out in political decisions—were heard and empowered. Moreover, the making of the strategy is in itself an innovative multi-actor collaboration (IMAC) that managed to mobilize actors from all sectors and achieved transformative change in Leuven's governance landscape in line with the principles of Alternative Food Networks (AFNs). AFNs are defined as networks of actors trying to do things differently regarding food production, supply and consumption (Manganelli, 2019). As Cerrada-Serra et al. (2018) put it, "AFNs are an attempt to re-socialize or re-spatialize food by establishing new and shorter relationships between producers and consumers based on trust, the redistribution of value in the food chain, as well as the establishment of new forms of political association" (p. 1373).

AFNs in Leuven as Initiators of the Food Strategy

During our research, we engaged alternative food practices in Leuven as partners of the LeuvenGymkhana (see section
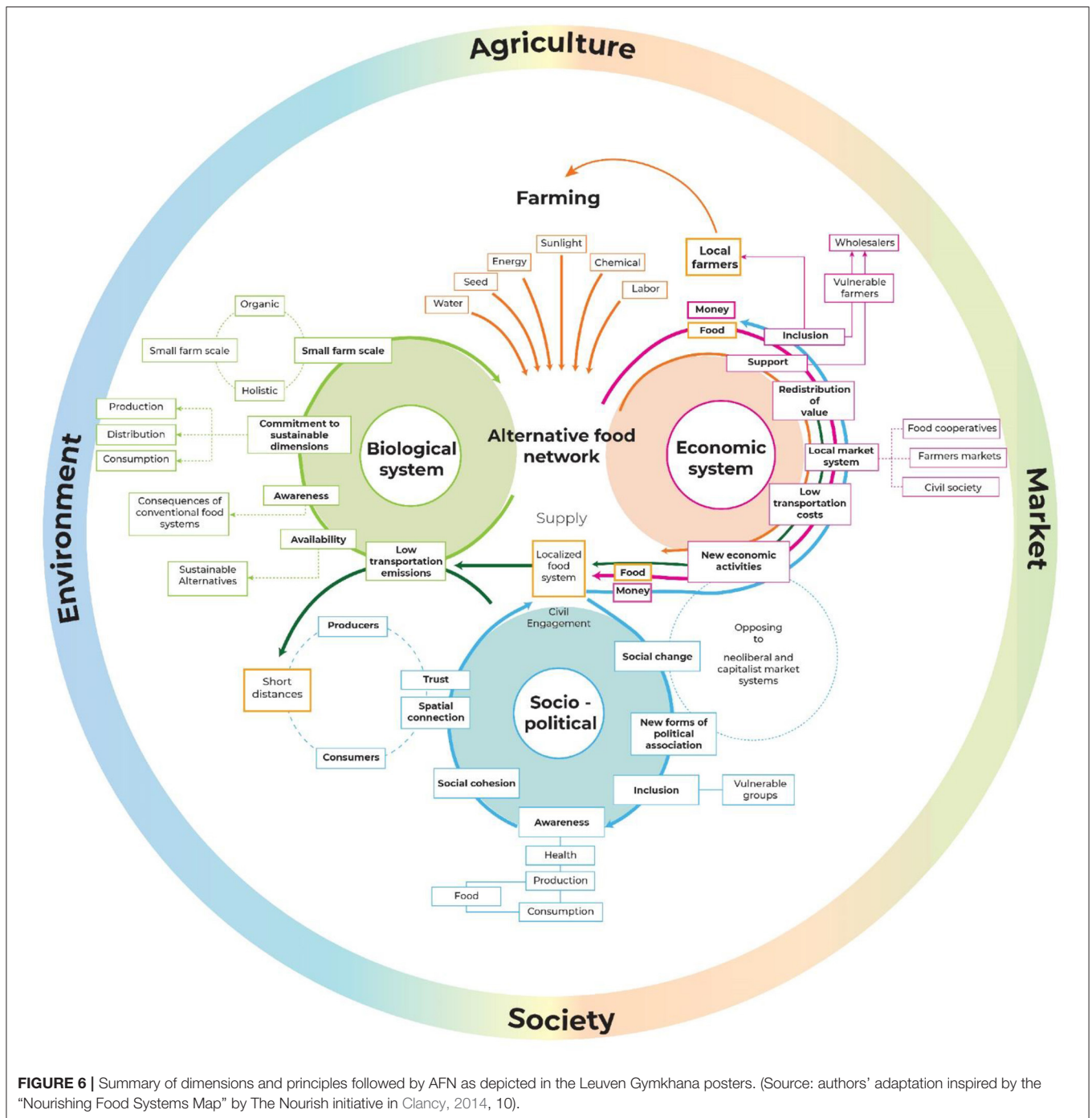
FIGURE 6 | Summary of dimensions and principles followed by AFN as depicted in the Leuven Gymkhana posters. (Source: authors' adaptation inspired by the "Nourishing Food Systems Map" by The Nourish initiative in Clancy, 2014, 10).

Conducting Action Research to Explore Governance Innovation in Leuven's Food System). From our collaboration, we were able to reconstruct the trajectory of AFNs in Leuven (light green boxes in the timeline) and to better understand their interests, struggles, and contributions both in transforming how food is produced and consumed and in the broader governance transformation of the food system (**Figure 6**). We summarize the learnings on each alternative practice in **Table 3**.

As opposed to mainstream food businesses, alternative food practices think of food as a system, not just an industry. They take into account economic, environmental and social issues related to food. All of these initiatives can also be framed within the social and solidarity-based economy, since their motivations are "not simply profit-based and the final aim of the economic activity is often to serve the community" (Fraisse, 2013). Their activities purposely address issues related to food justice, the relocation of food production

TABLE 3 | Reconstructing the trajectory and contribution of alternative food practices in Leuven.

Alternative (food) practices	Nature of initiative and trajectory highlights	Contribution to transforming Leuven's food system	Contribution to governance innovation in the food system
BoerEnCompagnie cv (B&C)	Since 2017, B&C has functioned as a cooperation between three farmers working on the principles of Community Supported Agriculture (CSA) in Leuven. Two CSAs were already running, being one of them the first in Belgium, started in 2007, and the other one running since 2015. They are part of the Flemish CSA Network, created in 2011 as a non-profit. Since 2018 they manage cows in Abbey Park, in a plot ceased by the city with the aim to recover traditional land uses. In August 2020, they took over Boer&buiten vzw, a non-profit working on education, aiming to integrate it within their framework.	As CSA initiative, they strive to transform food production, with attention paid to increasing the land available for sustainable farming, improving the quality of soil and working along natural cycles. They work with an established community of harvesters that pool resources for the year, and help in farming and harvesting. They collaborate with other initiatives in Leuven as providers, although their focus is on direct consumers. They are running a program with schools to involve students in agriculture, sustainability, and through learning by doing.	One of their main goals is to create a community and engage more people in experiencing sustainable food and agriculture. A farmer and a member of its Board were two of the initiators of the Food Strategy. The latter, remains a member of the "cockpit" in Leuven2030's food program. They struggle to improve farmer's contribution to governance in the city, due to lack of time and resources to commit. By establishing a cooperative of farmers, they can share risks and improve income stability. The relation with and among harvesters is based on trust and solidarity, allowing people to commit as their means and needs allow. Their ongoing collaboration with Bar Stan to make good use of surplus and available seasonal produce is reconstructing connections among actors in the local food system.
De Landgenoten cvso	The initiator of B&C was also involved in the creation of this "cooperative company with limited liability with a social purpose" in 2014. At the same time, a private foundation was established to be able to receive donations.	They aim to retaining agricultural land accessible to sustainable farmers, by means of buying agrarian land and leasing it fairly to farmers, whom they further support in learning and applying practices of sustainable agriculture.	They set a precedent of collectively owned land and building solidarity with and among farmers. Their performance extends to the Flemish level.
Rikolto	A relatively older and larger organization in the food system compared to the other actors in this section, as it dates back to 1950s when three NGOs joined in "Islands of Peace." In 2007 they shifted their focus to helping farmers and, in 2017, rebranded as Rikolto. They keep developing projects to contribute to a more sustainable food system by collaborating with other actors, like Kort'om Leuven (in 2018), Generation Food (in 2019) or Robin Food (in 2020).	Rikolto is an international NGO that works for a sustainable income for farmers and nutritious, affordable food for all. They reach their goals by building bridges between smallholder farmer organizations, companies, authorities and other actors across rural and urban areas. Through their global network, they wish to inspire others to collectively tackle the inter-related challenges of food insecurity, climate change, and economic inequality.	They innovate and support other smaller actors in the food system through collaborations, while also trying to push conventional and large actors, like supermarkets, to offer sustainable, healthy, and fair food. Since 2013, they participate in Gent's Food Policy Council, so they joined Leuven's dialogue about the Food Strategy in its early stages and brought in this experience. Also, they cease their program coordinator in Smart Food Cities as coordinator for the Food Program, and so, the organization remains somewhat the guardian of the implementation of the strategy.
Robin Food	The initiative was launched in April 2020, the beggining of the COVID crisis, by five organizations (Rikolto, Riso, enVie, Depot Margo, and EIT Food) who got together to transform vegetable surplus into soup made available for those in need.	This initiative aims at avoiding food waste and achieving food justice in times of crisis, when food chains were distorted and social vulnerabilities increased. It is based on collaboration among different steps in the food chain and social organizations.	This initiative has kept developing other products and extending to other locations in the Netherlands and Spain, by means of establishing collaborations among local partners.
Voedselteams (Food Teams)	Initiated as a collaboration between conscious consumers and local producers in 1996, it was established as an independent non-profit organization in 2001. They were involved in the development of Kort'om Leuven.	Food Teams is one of the oldest alternative practices operating in Leuven from the point of view of citizens (Cerrada-Serra et al., 2018). They help citizens obtaining a full basket of local and sustainable products by linking producers with consumers on basis of trust and solidarity.	By becoming an organization, they reached to Flemish funding that increased their capacity to establish a coordinating team that can support independent purchase groups, although each one self-organizes through volunteers. Over time, they have expanded and use the network to impact policy-making. However, receiving public funding sometimes gets in conflict with their lobbying and activist activities (Cerrada-Serra et al., 2018).

(Continued)

TABLE 3 | Continued

Alternative (food) practices	Nature of initiative and trajectory highlights	Contribution to transforming Leuven's food system	Contribution to governance innovation in the food system
Solikoop cvba at Hal5	Sociale Kruidenier cvba (social grocers) is a network of local shops at the Flemish level initiated in 2015 by 4 partners: CAW Riso, 't Lampeke, the RuimteVaart and the Flemish Brabant. In 2018, the "social grocers" changed their name to Solikoop and settled one of their shops in Hal5.	They aim to make sustainable food affordable for those who are struggling financially, by means of a dual selling price system so that those struggling financially pay less. They are distributors of Robin Food.	They seek social (food) justice by means of solidarity among citizens and collaboration among initiatives. Solikoop Leuven is established in Hal5, which is a community building initiative in which the community takes and decides activities and initiatives that can take place there, many of them relating to food.
The Food Hub cvba	After opening a pop-up store in the Depot in Leuven in 2015, the organic farmer and political activist Simon Clissold founded The Food Hub as a "cooperative company with limited liability" in 2016, with some bigger shareholders accompanied by more than 100 consumers taking a share in the organization. They are included in the Food Strategy as a "good practice."	They are committed to four principles: transparency in prices and the food chain, zero waste, fair trade and prices and 100% bio and sustainable food. Apart from the shop, they also built a warehouse that centralizes and manages purchases directly from sustainable European producers, and from which they make short-chain food procurement possible not only for the Food Hub but also for 30 other stores in Belgium.	A key feature is the fact that they establish direct connections with and among producers, encouraging coordination among them in terms of pricing and planting scheduling, and accepting whichever price they consider fair for their products. They increase transparency in the food system and with the community showing what happens in the food chain from production to consumption and everyone's earnings. Through their logistics department, they are building an alternative sustainable distribution network at the Belgian and European level.
Content	Content, was the first cooperative shop established in Leuven in 2014. They also run a "vending machine" of daily seasonal local menus installed in Hal5. They are included in the Food Strategy as a "good practice."	Food shop based on principles of transparency, zero waste, package-free, and buying local. They work with local producers directly, also through Kort'om Leuven, all shown in their window.	Their cooperative structure gives its current 231 shareholders—among consumers, workers and suppliers—rights in the organization's decisions. They also strive to build a community of buyers who support them and work with a rich agenda of activities to be more ethical and responsible.
Bar Stan	Bar Stan is a small "neighborhood bar" initiated in 2014. In the last years they have consolidated a collaboration relation with B&C, exchanging food surplus, and food waste. As one of the selected projects from the call to use public land for urban agriculture made by the VLAR, a former chef at Bar Stan is starting his own garden for herbs.	Their values of promoting local, sustainable and seasonal food permeate every aspect of their business. They work with local producers -among which B&C and Kort'om Leuven- to co-create a flexible menu that makes use of what is in season and in surplus to ensure a low carbon footprint and reduce potential for food waste. They are starting to grow their own herbs to reduce their footprint.	Their philosophy of strong sustainability includes not only ecological considerations but also extends to the social realm—Bar Stan consider themselves as a community space, not just a business. They embrace their community and share and question their values and knowledge of how to eat local and promote responsible consumption. They were actively involved in the design of the Food Strategy at the individual level, and hope to see their sustainable business model extend to future generations of food establishments in Leuven.

and the expansion of sustainable agricultural practices, recovering links between producers and consumers, and fairness and transparency in food prices and the whole system.

Governance-wise, these initiatives adopt innovative institutional formulas that allow this hybrid commitment to economic and socio-environmental logics and interests. Interestingly, although these actors are primarily businesses, they take the legal form of cooperatives or non-profit organizations, with strong social and sustainability principles that relegate economic objectives to a secondary position. Moreover, these institutional formulas allow them to innovate in their internal governance and to experiment with participatory and

democratic governance, empowering the individuals in and around the practice, and building a strong connection with the broader community of citizens and other actors in the alternative food system.

Trust and solidarity are the basis for relations within and among these initiatives, as we learn from the nature and trajectory of each individual initiative, and especially from the intricate relations that these have been knitting in the building of an alternative food system. From this logic, they experiment with new ways of sharing resources and risks within and among individual and collective actors and to be flexible and adapt to changing circumstances. For instance, within

BoerEnCompagnie, "harvesters" can contribute and harvest according to what they consider fair for their family situation, while their long-term commitment ensures a fair and secure income for farmers and guarantees extra hands in the most demanding times of the year. In contrast to the mainstream market logics based on competence and increasing individual gains, the Food Hub also puts transparency and trust with their providers at the core of their business—for instance, by not bargaining prices and encouraging producers to coordinate their produce calendars and prices. Moreover, their collaboration with other sustainable shops in Belgium is allowing them to upscale their wholesales department into an alternative logistics platform for ecological short-circuit supply at the regional level.

Informal collaboration among initiatives increases their impact closing natural cycles and advancing toward a sustainable transition. For example, Bar Stan keeps adapting its menu to make use of surplus produce from BoerEnCompagnie; in doing so, it avoids produce going to waste while offering local, fresh, seasonal, and sustainable food to its community. However, relations based on trust and collective experimentation encounter serious difficulties within food sector regulations, which are based on mistrust and control and designed for food chains that are increasingly globalized, broken in steps and anonymized. In this regulatory environment, restrictions and certifications are the only ways in which food quality can be ensured. These mechanisms cast extra burdens and costs on food businesses and limit innovation and the growth of a local alternative food system. For instance, strict waste regulations and sanitary controls hinder BoerEnCompagnie's possibilities to informally reuse local food leftovers and gardening waste as a valuable input to improve the quality of the soil or to feed their animals.

Evolution and Interaction of IMACs Along the Institutionalization of the Food Strategy

In this subsection, we further analyze the evolution and interaction between the two IMACs (Leuven2030 and the IMAC governing the Food Strategy). From the analysis, we identified three stages of institutionalization—or formalization—of the Food Strategy as a socially innovative initiative, clearly shaped by the changing relations and roles of actors in Leuven's food system. In parallel, we examine Leuven2030's constant evolution, explaining how its involvement in the IMAC governing the Food Strategy also affected the evolution of the strategy and the IMAC governing its implementation.

First Stage of Institutionalization of the Food Strategy: From Bottom-Up Movement to IMAC

The principles and struggles of AFNs in Leuven informed and guided the collective discussions and the drafting of the "Food Connects" strategy as a collective agreement, which we identify as a first stage of its institutionalization. In this stage, the bottom-up movement led by three individuals from AFNs upgraded into an IMAC, of which alternative practices performed as stewards and catalyzers, while requesting Leuven2030 to perform as mediator. Leuven2030's participation in this stage was also key for mobilizing more actors and resources for the drafting process.

This stage is characterized by the negotiation of interests among AFNs, which brought in mixed logics and specific concerns, and bigger actors in the food system were invited to the process. Accordingly, when we analyze the final objectives included in the Food Connect strategy (see **Table 2**), we identify how interests and ambitions of AFNs softened. While the strategy mentions ongoing alternative practices and initiatives in the city as successful examples that contribute to its goals (e.g., The Food Hub, Noordoever, BoerEnCompagnie, Solikoop, Content), it does not mobilize specific resources to expand these practices, nor does it emphasize the need for binding policy changes that could alter or challenge conventional food systems' strategies. In addition, more controversial topics—like supporting meat and dairy alternatives in diets, sustainable meat production, organic, and regenerative agriculture or CSA as essential criteria to achieve sustainable and healthy food in the city—faded away in the final text. This was partly due to the conflict these issues trigger with mainstream practices of farmers represented by Boerenbond, the biggest farmers' union in Flanders.

Scope and Governance Readjustments Within Leuven2030: The Roadmap and Its Implementation Plan

While the strategy was being drafted, Leuven2030 plunged into a process of critical reflection and readjustments both in terms of scope and objectives and internal governance. First, since carbon emissions were not being reduced at the intended pace, the Board of Directors readjusted the target to achieve carbon neutrality to 2050, with an intermediate milestone of reducing 70% of the emissions by 2030. Also in 2018, Leuven2030's Project Team (PT) gathered 70 volunteer experts from Leuven2030's network– mainly engineers- and hired the planning office BUUR as process facilitator to develop a Roadmap (De Paep et al., 2019) to set specific actions and monitoring mechanisms to achieve the agreed reductions, already including so-called "scope 3 emissions." Consequently, themes deliberately ignored in the original 6 thematic cells were incorporated, such as food. Presented and signed by all partners in March 2019, the Roadmap defined 13 lines of action or Programs and 80 specific project clusters or "sites." Coinciding in time, the draft of the Food Strategy was used as basis for the design of Program 8 "Sustainable and Healthy Eating" (the Food Program).

As specific lines of action took shape, the initial focus of the PT on fostering participation in Leuven2030 (as stewards and mediators) gradually shifted to the management of the implementation of the Roadmap (catalyzers). Aware of the "bottle-neck" limitations of having a small PT, a "snowflake" governance update was envisioned to diversify and share leadership in the implementation of the Programs with partners (**Figure 7**).

First, experts in each field were allocated as program coordinators or facilitators, responsible for mobilizing and engaging a network around each program. Most of the 18 facilitators appointed were "outsourced" by partner organizations to work part-time for Leuven2030. Namely, the Food Program coordinator is Rikolto's Food Smart Cities coordinator, working for Leuven2030 two days a week. This increased the hybrid

FIGURE 7 | Internal governance model in Leuven2030 as per update in 2019.
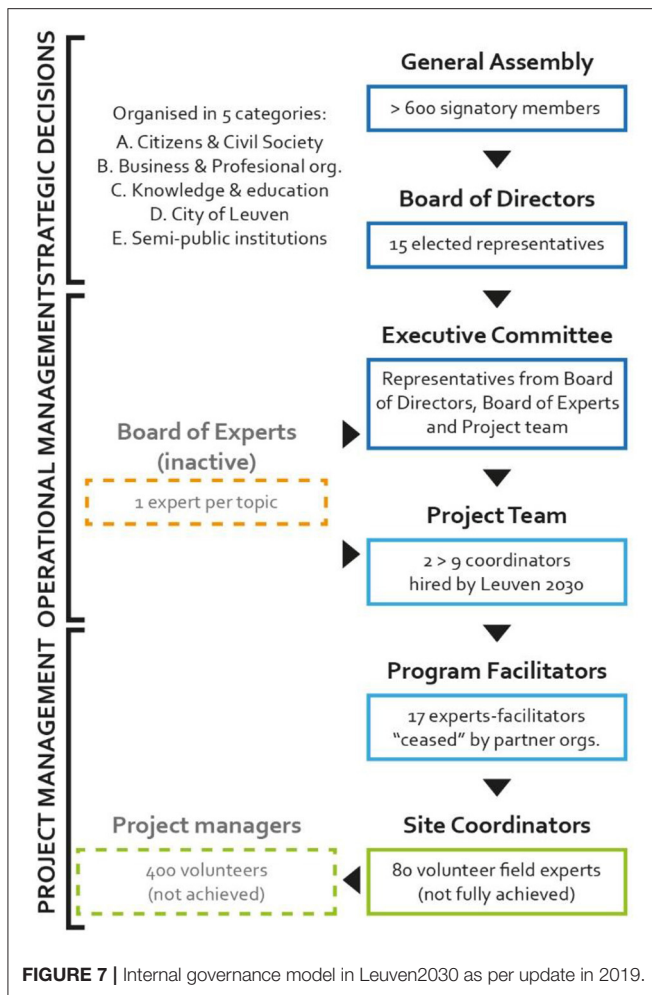
role of facilitators, who had to navigate between the logics of Leuven2030 and their "home organization," and inter-dependencies between Leuven2030 and its partners, empowering organizations coordinating each program (**Figure 8**).

Program Facilitators performed as stewards and mediators within each program, as they were meant to mobilize volunteer "Site Coordinators" to support them as catalyzers overseeing the implementation of each program "site." The ambition was that the 80 Site coordinators would subsequently identify volunteer managers for all 400 specific projects in the Roadmap by 2020. Within the Food Program, the facilitator relied on the network of actors that had participated in the development of the Food Strategy to find coordinators for its five sites, i.e., one of the strategy's initiators, two colleagues from Rikolto and two civil servants, who gathered regularly in the "cockpit" to coordinate actions within the Food Program.

Within the new structure, the role of the PT became less content specific and operational and more transversal and supportive toward program facilitators in regards to finding funding, communication and storytelling, monitoring, knowledge development, and process support and stakeholder engagement—thereby recovering a stewardship role.

Second Stage of Institutionalization of the Food Strategy: Consolidation of the IMAC
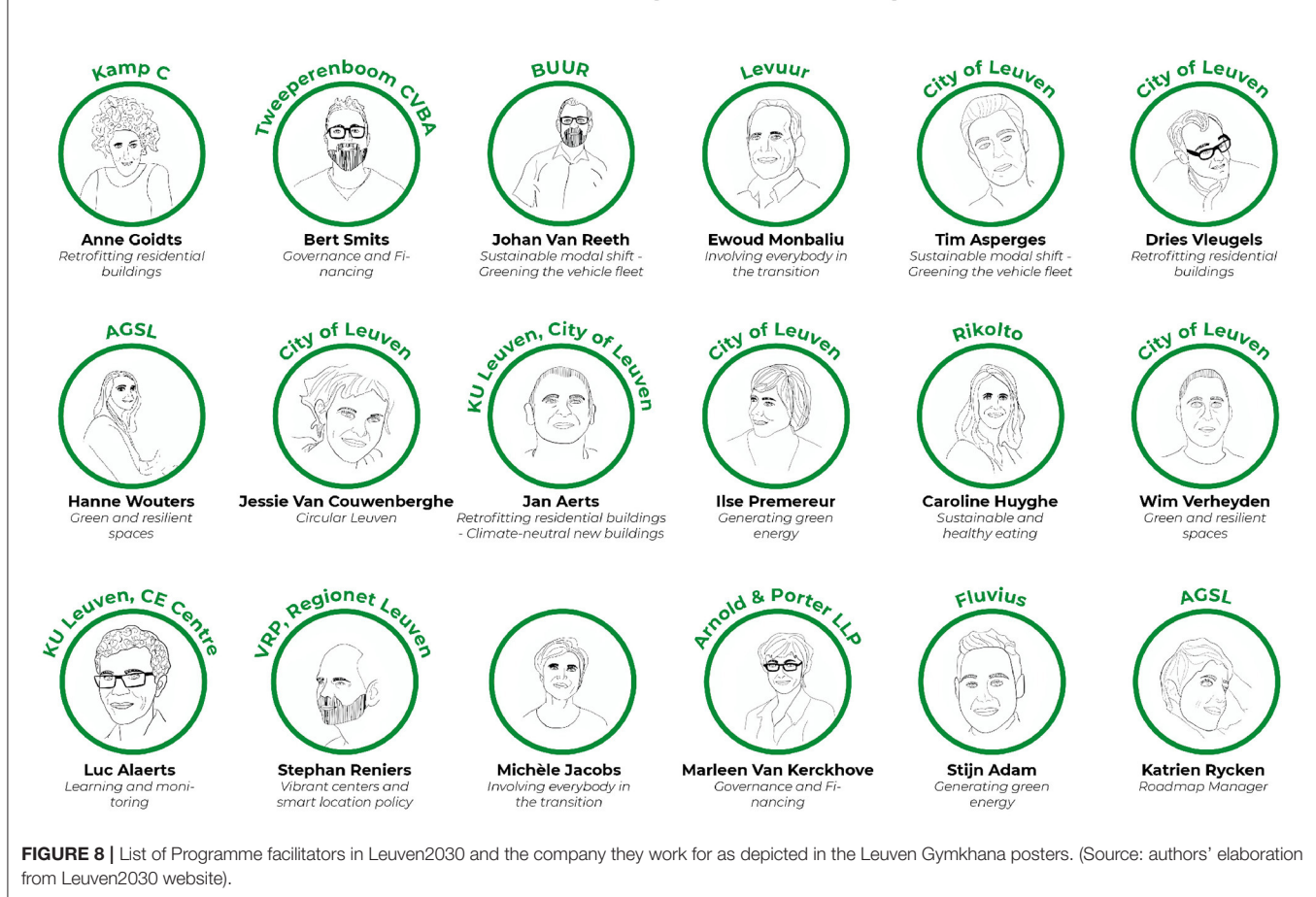
The establishment of Leuven2030's new Food Program depicts a second stage of institutionalization of the Food Strategy and the IMAC governing it. In this process, the original objective of the systemic transformation of the food system and the will to expand alternative practices of the Food Connects strategy were translated into Leuven2030's carbon neutrality logics. For example, instead of *preventing* food waste as presented in the Food Strategy, the Food Program seeks to *reduce* food waste. Similarly, commitment to short chains and food justice for all disappeared from the goals in the Program, together with the elements from the original text that focused on the well-being and fair distribution of risks among actors in the chain, especially farmers. Despite these compromises, when the Food Program was launched, it was one of the exceptions within Leuven2030 that actually managed to mobilize "site facilitators" by integrating some actors from the IMAC governing the Food Strategy.

In this stage of the institutionalization of the strategy, the two IMAC trajectories, Leuven2030 and the Food Strategy IMAC, reinforced each other. Taking advantage of its previous experience as an IMAC in the city, Leuven2030 became steward of the Food Strategy IMAC apart from its original mediating role, while the actors participating in the Food Strategy strengthened the implementation of the Food Program providing a network of actors supporting the program facilitator. Through the Food Program, an infrastructure was secured for the Food Strategy IMAC to stay in place during its implementation in which individual actors related to alternative practices could continue to volunteer in the "cockpit" and coordinate the implementation of the Food Program, and as such remained empowered.

Furthermore, in this stage some fast steps were taken to start implementing the strategy, taking advantage of the momentum of the process and multi-actor collaborations triggered in the previous stage. Specific objectives were developed hand in hand with initiatives and ideas that individual actors were trying to launch. The publication of the strategy thus served to secure their legitimacy, impulse them in the food system and help them mobilize resources. This was the case, for example, with the project establishing the multi-stakeholder local cooperative logistics platform Kort'om Leuven. By early 2020, the project (coordinated by Rikolto and drafted in collaboration with Voedselteams, Innovatiesteunpunt, and Boerenbond) had managed to secure funding from the City of Leuven, Vlaanderen Circulair (Flemish level), the Belgian Administration for Development (through Rikolto's funding as NGO) and the European program EIT Food. It was ready to be registered as an organization, and had ideas to further collaborate with other projects with social and circular economy interests such as Samenlevingsopbouw and FoodWin. Additionally, the "Food and Agriculture Board" (VLAR) had already been established in 2019 as a stable advisory board to guide the Municipality in further implementation of the strategy as stated in the strategy.

All in all, in this stage different actors that had participated in the drafting process took ownership of the collective outcome and started translating the objectives of the strategy into their specific logics and possibilities for implementation, which helped

FIGURE 8 | List of Programme facilitators in Leuven2030 and the company they work for as depicted in the Leuven Gymkhana posters. (Source: authors' elaboration from Leuven2030 website).

consolidate the Food Strategy IMAC and mobilize resources and collective action to advance the transformation of the food system.

Further Governance Adjustments Within Leuven2030 Embracing "Systemic Thinking" and "Radical Change" Discourses

The way Leuven2030's Roadmap had been developed and the fact that not all programs managed to mobilize a network of volunteer site coordinators gradually transformed the originally intended "bottom-up movement" into an "expert-driven" organization intending to "shake" stakeholders in the ecosystem. In this context of human resource scarcity and increased ambitions, the PT decided to further support the implementation of all programs incorporating a strategic and systemic approach that could establish relations among programs, complementing "the Roadmap's engineering logic." For this, and aiming to mobilize further resources for the implementation of the Roadmap, they sought the support of the European Program EIT Climate-KIC, and applied to the "Deep Demonstrations of Radical Climate Action" (European Commission, 2020). As one of the 11 selected cities,

they identified three strategic experiments to act as levers for the transition across domains, currently under implementation (Leuven 2030, 2019).

Influenced by this experience, Leuven2030 stopped incorporating site coordinators and, instead, asked program facilitators to focus on one "breakthrough" or "game-changer" project with which to achieve the greatest impact combining efforts with other programs. This approach was regarded as more engaging and feasible both for program facilitators and the PT. One of the 10 resulting projects is the Food Resource Hub, being developed between Programs 8 (Food) and 9 (Circular economy), replicating the model developed by the project De Clique in the Netherlands (https://declique. nl/) to recover and reuse organic waste streams from food businesses (Castillo-Vysokolan, 2021). The definition and implementation of this new project clashes with the long-term perspective and cumulative support to alternative practices envisioned in the original strategy. In addition, it tries to solve a "new" problem relying on the monetarization and formalization of food waste streams from a market logic and does not challenge the system or raise questions on how to prevent the waste.

Meanwhile, governance challenges kept arising as the internal structure and objectives increased in complexity and speed and programs focus more on implementing specific projects:

"It's a huge governance question that we face now. […] How do we want to make sure that all these people taking initiative, taking leadership, are operating within a certain minimum frame? How do we decide what decisions they can take on their own and what decisions should be checked with us or with our Executive Committee or with our Board of Directors? […] And how do we keep everyone engaged?..." (Personal communication in 2020 with PT member at Leuven2030).

Likewise, Leuven2030's internal structure is being continually updated. The Executive Committee is planned to disappear, and full operational mandates will be transferred to the PT under the Board of Directors. Also, the role and performance of the Board of Directors and the Board of Experts—inactive for 3 years—are currently being updated.

Third Stage of Institutionalization of the Food Strategy: From IMAC to Big-MAC

The approach and governance changes within Leuven2030 directly affected the third stage of institutionalization of the strategy that occurred as Leuven2030 and the City started implementing specific projects to realize the objectives of the strategy.

At this stage, the work of the Food Program was modified to integrate the project logic and new discourses spreading within Leuven2030. Focusing on the Food Resource Hub as leverage project to be implemented in synergy with other programs, the Food Program Facilitator not only became gate-keeper of the issues addressed but also of the actors involved in the Food Program, and in the Food Strategy IMAC. The first consequence of this change was that the "cockpit" was no longer summoned nor included in decision-making, disempowering alternative practices and individual actors involved in previous stages. This affected the stewardship and mediating role Leuven2030 was playing within the governance of the Food Strategy (through its Food Program), as it no longer focused on nurturing and coordinating the network nor addressing the multi-dimensional problems and obstacles that actors in Leuven's food system were already facing. Instead, Leuven2030's Food Program is inventing new problems and importing projects to solve them. In this context, although alternative practices are acknowledged as contributing to the goals of the Food Strategy in some parallel activities still developed by the Food program, for instance being mapped in the Ecofoodmap[4] (Rikolto, 2021) included in the new "matchmaking" website launched for the Food Strategy[5], they are not being called upon or provided with means and resources to actively participate in the activities developed. Consequently, the AFN that had participated in the strategy and supported the program no longer feels attached to the strategy and choose to disconnect from further implementation phases.
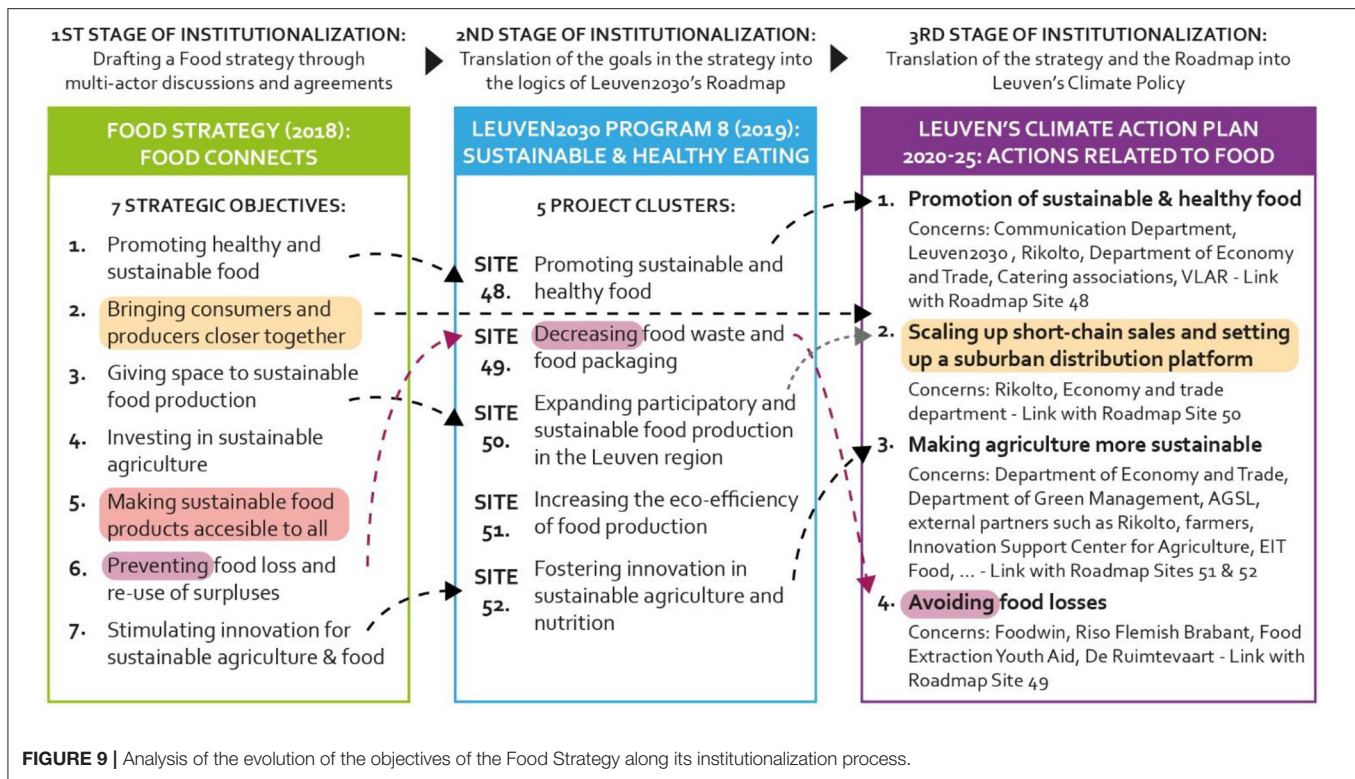
Meanwhile, the Food Program strives to establish a new *ad hoc* ecosystem of actors for the new project. In this quest to increase the impact of Leuven2030's "leverage projects," they increasingly call upon "game-changer actors," mainstream and powerful businesses, knowledge institutions and public companies, as partners that can bring further resources, while citizens are only viewed as "consumers" and not included in decisions on projects. Eventually, as Leuven2030 takes leadership and control on who and how to involve actors in implementation projects, the original network of diverse actors dissolves and only bigger actors aligned with mainstream sustainability principles and with resources to participate in Leuven2030 or the meetings proposed under the frame of the Food Resource Hub remain engaged in the further implementation of the Food Program.

In parallel to Leuven2030's work, in 2019 the local government started integrating the original Food Strategy and Leuven2030's Roadmap into Leuven's updated Climate Action Plan 2020–25, passed in 2020 (Vanhorebeek, 2020). This document includes four lines of action related to food. Line 2 directly connects to the development of the local cooperative logistics platform Kort'om Leuven, and so recovers one of the objectives that had disappeared in the Roadmap and formalizes the City's economic support for the project. Still, as in the Roadmap, food security, and social justice issues are not specifically mentioned, nor are aspects related to relocation of food production (despite interest in extending sustainable farming) or to the transformative change of the system. In **Figure 9** we compare the objectives of the three documents developed along the institutionalization process: the Food Connects Strategy, Leuven2030's Food Program and the food initiatives in the Climate Action Plan.

Governance-wise, in this stage, while the Food Program kept transitioning from mediator to catalyzer in the IMAC governing the Food Strategy, the VLAR consolidated as a discussion body for food issues bringing together actors of the food system and civil servants from different fields, and de facto taking the role of the "guardian" of the strategy from the perspective of the Municipality. An outcome of this board was the call launched for projects to start urban agriculture in 10 public agricultural lands (Stad Leuven, 2020). Yet, the design of this board, with a selection process of representatives and formal meetings during working hours, adds to the time and resources limitations that alternative practices already encounter to participate in Leuven2030's projects. Therefore, the VLAR reproduces representation and power imbalances within Leuven2030, while reducing the diversity of perspectives to 25 experts and/or representatives of food organizations (Avermaete, 2018).

The processes depicted in this stage evidence that, as Leuven2030 and the City take over a leading role in the implementation of the strategy, the bureaucratic, hierarchical and project-based working logics become prominent. While more resources are made available for specific projects like Kort'om Leuven and urban agriculture initiatives, the project logic fades out part of the collaborative richness and systemic approach of the original aspirations of the strategy.

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[4]https://dashboard.voedingverbindt.be/
[5]https://www.voedingverbindt.be/

FIGURE 9 | Analysis of the evolution of the objectives of the Food Strategy along its institutionalization process.

Current State of Affairs: From IMAC to Big-MAC and Back?

Limitations in the Internal Governance and Performance of Leuven2030 as an IMAC

Our analysis of the performance of Leuven2030 and the current state-of-affairs of the implementation of the Food Strategy in Leuven leads us to conclude that Leuven2030 as an IMAC contributed to the transition from traditional state-centered to more collaborative modes of governing sustainable transitions and to the transformation of Leuven's food system facilitating the consolidation of an IMAC around the Food Strategy. Yet, we identify some limitations and changes in the scope and governance within Leuven2030 that lower its IMAC nature. These also affect the role of Leuven2030 as an IMAC within the Food Strategy IMAC, which is negatively affecting the evolution of the latter. We discuss the limitations and contradictions we identified in the following lines.

Leuven2030's stable and independent structure as a non-profit governmental organization affords it independence from the work of the local administration and a long-term perspective beyond political cycles and interests, while ensuring the municipal commitment to collective objectives. Such independency has allowed its internal governance to adapt to changing conditions. Still, its hierarchical and rigid structure, inherited from legal requirements for non-profit organizations, hinders full achievement of socially innovative collaborative governance and keeps hindering broad and fair participation of all urban actors. First, due to the cascade of decision-making bodies, intermediate levels become bottlenecks in terms of advancing operational and project-related decisions. Second, there is a lack of mechanisms to enable horizontal interconnection and systemic exchange among programs and direct connection between teams and higher instances. Third, while open membership and the creation of Programs allowed more people to participate in the implementation of the Roadmap, participation in decision boards and project implementation relies on voluntary individual commitment and corporate cession of labor-force, which only big and resourceful actors and institutions can afford.

Moreover, while Leuven2030's "DNA" categories have been praised in theory for enabling power sharing among urban actors, there are several flaws in its practical implementation that reproduce power imbalance and favor bigger and business-as-usual actors. To start with, while defending a quadruple helix model, the representation (and power) of state administrations is doubled by splitting the City from public companies as different categories. Conversely, civil society is approached from a restrictive perspective, gathering together individual citizens and civil and social organizations, with the possibility to also incorporate alternative practices from the social economy, which leaves the business category for mainstream actors. Eventually, 500 out of the 600 partners concentrate in the "civil" category. This strengthens the representation of more powerful actors from the other categories in Assembly decisions and the Board of Directors and reinforces prevailing market logics.

Moreover, the simplistic categorization system as per sector does not take into account the hybridization of roles and dualities of representation deriving from the different levels of aggregation of the actors participating in Leuven2030. Therefore, individuals from collective actors in other categories can also participate as individuals and representatives of the civil society category, reinforcing the accumulation of power of market and state actors. In the end, although the model was designed to ensure the involvement of all sectors, the engagement and participation of civil society and small alternative initiatives is deeply hindered.

We acknowledge that Leuven2030 has managed to facilitate multi-actor collaboration and unify stakeholders behind a shared vision and successfully support the co-creation of shared agendas and action plans like the Food Strategy. However, during the development of Leuven2030's Roadmap and the establishment of Programs for its implementation, Leuven2030's role has gradually shifted from intermediation to control over the collaboration as program facilitators gained influence in decisions related to agenda setting, stakeholder involvement and designing the framework of multi-actor collaboration around specific projects. As a result, coordinators and program facilitators became gate-keepers for actor involvement and distorted horizontal relations and collective decisions in actors' networks around each program, at least in the Food Program. Moreover, as Leuven2030's paid staff, i.e., PM coordinators and Program facilitators, are responsible for the implementation of the Roadmap, they focus more and more on project management and reaching the milestones approved by higher instances (catalyzer role) and not so much on nurturing and facilitating the IMAC itself. Subsequently, they do not perform roles as stewards and mediators of the IMAC anymore.

Furthermore, Leuven2030 has successfully managed to pool resources from its partners and mobilize exogenous resources for joint action, developing an innovative sharing framework through the independent NGO, as well as a strong expertise in applications for European Programs and funding. However, the focus on resourceful partners and funding applications reinforces a project-based working logic and the adoption of the discourses and interests of the actors bringing in such resources, namely "carbon-neutrality," "transition," and "radical demonstrations" discourses spread at the European level and market logics and economic interests of resourceful partners in the network. Furthermore, specific interests from partners "ceasing" program facilitators gain influence in Leuven2030's narratives. As demonstrated in the Food Program, this has a direct translation and impact on the work of Leuven2030's programs and their relations with the urban ecosystem.

All of these problematic issues seep through the urban governance layers of Leuven2030 as a city-wide organization coordinating a sustainable transition toward the implementation of each individual program, and specifically into the governance of the Food Strategy in which Leuven2030's Food Program plays a key role.

Limitations in the Food Strategy IMAC

The development of the Food Strategy is a complex process of collaboration and negotiation that started with a bottom-up reaction to Leuven2030's rather restricted approach to sustainability. The process resulted in a Food Strategy developed and agreed upon by many stakeholders in the city that set in motion the framework for further multi-actor collaboration to transform the food system. However, only more powerful and resourceful actors are able to keep actively engaged in and benefit from these processes.

As implementation of the Food Strategy advances, Leuven2030 and the City increasingly focus on their catalyzer role in order to achieve results. In doing so, they are no longer allocating resources and efforts to retain the original network governing the strategy, nor time and appropriate participatory mechanisms to ensure broad and diverse multi-actor discussion. Eventually, individual citizens and AFNs are no longer able to participate in the formal decision-making settings implemented, i.e., Leuven2030's Food Program and the VLAR, and are substituted by more resourceful actors. Accordingly, other logics—mainly linked to the predominant market and professional-led approaches to sustainability—gain relevance without any reflection on the aspects and actors that are being left behind. In parallel, despite the specific efforts made to separate Leuven2030 from the City, inter-connections among the two organizations remain, such as sharing working spaces and employees taking dual and sometimes conflicting roles in both organizations, and the potential roles and specific responsibilities of each actor fade away. Regarding alternative practices, although some of their members participated in Leuven2030 and previous stages of the Food Strategy at an individual level, none of these organizations except Rikolto actively participate in Leuven2030 anymore, and they no longer feel attached to the Food Strategy.

Eventually, we are seeing a gradual disconnection between the actors that are taking decisions at the strategic level and the alternative practices and individual citizens that had pushed the strategy in its first moments and that keep working "on the field." Consequently, two (or three) parallel trajectories take shape, splitting the initial IMAC into: (1) the AFN working from a pragmatic problem-solution approach and strengthening the alternative food system through new collaborations and engaged citizens, and (2) two "Big-MACs," collaborations among big actors coordinated by Leuven2030 and the City, working at the strategic level in the development of formal documents and trying to implement them with new specific projects. As fewer actors remain involved in decision-making in implementation stages, economic interests, and predominant market and project-based logics prevail over the mix of social, ecological, and economic concerns and solidarity logics originally combined in the strategy. Furthermore, efforts in each trajectory can be duplicated or targeted to issues that are not priorities as per the spirit of the strategy since each actor is increasingly driven by feasibility or opportunity conditions without caring for the general coordination of the Food Strategy or what other actors are doing or need.

Finally, we argue that these trajectories are in a crossroads. Recovering the IMAC by paying attention to the governance of the Food Strategy and the role that each actor plays in it would increase the possibilities to synergize efforts at the local level, ensure the survival and upscaling of local actors and achieve the objectives collectively developed in the Food Strategy. Continuing the path of separated trajectories, in contrast, may reproduce existing power relations in Leuven and marginalize AFNs. During the action research, we have discussed our interpretations of the ongoing process and subsequent recommendations with stakeholders to recover the IMAC (see full list of recommendations in supplementary documentation in Medina-García et al., 2022). The discussion will feed the next steps of the ongoing research.

CONCLUSIONS

From the discussion of our empirical analysis, we come back to the main inquiries of this research, regarding the way socially innovative multi-actor collaborations (IMACs) are established for the governance transformation of food systems, how collaboration is enacted within them and how governance innovations in these fields affect and are affected by broader governance innovation at the urban level. To answer these questions, we embraced theories of hybrid governance, multi-level governance and collaborative governance and facilitative leadership in the framework of an institutionalist approach to governance and social innovation theory. The perspective of *hybrid governance* helped us understand the negotiation processes and changing relations of actors in two IMACs in Leuven and how the approach, scope and governance of joint actions have evolved within and among such IMACs. *Multi-level governance* reveals important aspects in understanding how food systems and local efforts to transform food systems work and the difficulties encountered by actors involved in these transformations. It also unveils the complex combination of logics in local IMACs and (dis)empowering processes within them. Theories on collaborative governance and *facilitative leadership* uncover the multi-actor collaboration processes and the specific (changing) roles actors take within IMACs, and identify different stages in the evolution of the IMACs.

Combining these theoretical inspirations, we built an analytical frame to guide our analysis of IMACs, summarized in **Figure 1**. In regards to the collaborative process itself, the frame highlights the duplicity and hybridization of actors that participate in IMACs, integrating both collective and individual agency and nuances within the civil society sector. It also identifies drivers, dimensions and three levels of outcomes of collaboration that are relevant for triggering and sustaining IMACs through time. Hybrid governance and facilitative leadership play a key role in studying the evolution (and survival) of IMACs over time. Multi-level governance interferences and agency-structure interactions between socially innovative collaborations and the institutional framework in which they operate are to be taken into account, both as starting points for

the collaborative process, and as third-level outcomes of IMACs. These complement the upscaling of initial collaboration or the subsequent establishment of new collaborations (second level outcomes), and the achievement of collective objectives set within the IMAC (first level outcomes). In the following paragraphs, we further discuss the findings of the case study analysis through the lens of the analytical framework. For our methodological findings regarding action research, during which the research questions, the framework and the case studies were co-constructed, we refer to (Medina-García et al., 2022).

Continuous tensions between the local and the supra-local frameworks, actors and actions play an important role in the development and evolution of IMACs in urban food governance. First, our research demonstrates that IMACs can be an empowering tool for local actors to challenge supra-local and systemic power imbalance and injustice. For instance, by exchanging and combining interests and logics and building consensus with all actors in Leuven's food system, the AFN in Leuven managed to mobilize an IMAC around the Food Connects Strategy. The framework for collaboration established through this IMAC allowed for maximizing the mobilization of resources and action at the local level, challenging the unsustainability and power imbalance characterizing the global food system, strengthening the alternative practices already working in the transformation of Leuven's food system, and empowering local actors in decision-making related to food systems at supra-local levels. Second, networking and supra-local connections of urban actors can increase the legitimacy and outreach of transition processes, mobilization of resources, and peer-learning. Namely, as in other cities, joining the Covenant of Majors in 2011 or the Milan Food Pact in 2020 reassured the City's commitment to these issues in the long term (Vara-Sánchez et al., 2021), and recognitions in European prizes and applications to European Programs increased the resources and outreach for Leuven2030's work. Third, peer-learning facilitated by international networks and the inclusion of actors that had participated in Gent en Garde, like Rikolto and Levuur, brought in valuable expertise to the development of Leuven's strategy. Fourth, the development and consolidation of Leuven2030 and the governance of the Food Strategy as IMACs and their achievements in Leuven can only be understood with regards to the trajectory of more than 25 years of local experimentation in multi-actor collaboration and building an AFN, catalyzed by specific compromises or impulses from local politicians in particular "crisis" moments. This reinforces the premise that the consolidation of IMACs builds on previous sedimentations of experimentation and benefits from the impulse of political will in specific windows of opportunity (Medina-García et al., 2021).

The transformative and emancipatory nature of Leuven's Food Strategy as a tool to enact transformative change in the food system aligns with other food strategies around the world (Sonnino, 2016; Simon Rojo et al., 2018; Manganelli, 2020; Tefft et al., 2020). This shows that collective outcomes produced by IMACs can sometimes be considered as social innovations in themselves, which endure the same tension between transformative power and institutionalization. As such,

they affect the performance of actors but also keep evolving as actors adopt, transform and adapt them to their own logics and action plans. In the case of Leuven, the process of institutionalization of LKN's report, Leuven2030's Roadmap and the Food Connects Strategy reshaped and was shaped by the broader policy and governance landscape. On the one hand, these documents modified the behavior of actors involved and of those that are taking it up for further implementation (Leuven2030 and the City) and inspired policy-binding documents such as the Climate Policy. On the other, the logics of the actors involved in implementation stages are transforming both the content and the governance of collective objectives regarding the transformation of Leuven's food system. First, the principles of the strategy were translated into the "climate neutrality" logic of Leuven2030 and incorporated in its Roadmap, guiding the creation of the Food Program. Second, Leuven2030's Roadmap (including the Food program) was translated into the local policy level within the Climate Policy Plan 2020–2025. Third, the current implementation of the principles of the strategy is guided more by discourses of "radical change" and "systemic change" embraced by Leuven2030 and by the project logic and the interests of the actors participating in or bringing resources to Leuven2030 and the VLAR, rather than by the perspectives of AFN, which are no longer participating in the strategy's implementation and evaluation. Ultimately, as different actors from the Leuven2030 IMAC advance in parallel trajectories, the strategy loses the multi-dimensional transformative perspectives that made it socially innovative in the first place.

Within such a complex network of actors, interests and logics, our research also showed the relevance of the pre-existence of city-wide IMACs as enablers for new sectoral IMACs to emerge and thrive, illustrated with the facilitative role of Leuven2030 as an IMAC within the IMAC governing the Food Strategy. This intricate relation among actors puts forward IMACs themselves as a higher level of "aggregation" of actors to those introduced in the Multi-Actor Perspective (Avelino and Wittmayer, 2016), which, as sectors, can be considered both as collective actors and as institutionalized spaces for multi-actor interaction, negotiation and experimentation (Martinelli, 2013). Castillo-Vysokolan (2021) further explores this dimension analyzing the role of Leuven2030 as a collaborative platform (Ansell and Gash, 2018). Apart from providing neutral and stable spaces for multi-actor interaction, collaborative platforms can be decisive in revealing different governance logics and levels and mediating among these and between local actors and supra-local resources and influences for the transformation of local food systems, taking influences from and influencing networks, policy levels, and actors. From this perspective, IMACs provide spaces for conflict and negotiation and mechanisms to share knowledge, resources, and power among actors in the IMAC, and can also help combining strategic and operative work.

The process of institutionalization of the IMACs in Leuven illustrates the tension between transformative independence and institutionalization and outreach broadly discussed in social innovation literature (Van den Broeck, 2011; Martinelli, 2013; Pradel et al., 2013; Van Den Broeck and Vervloesem, 2016; Paidakaki et al., 2020; Van den Broeck et al., 2020). Moreover, our research shows that, in the case of IMACs, institutionalization processes can also have a direct impact on power relations, with the risk of directly empowering and legitimating discourses and logics of actors that bring in more resources to the collaboration. By becoming a collective actor within the IMAC governing the Food Strategy, the IMAC Leuven2030 managed to reinforce the Food Strategy in its early stages and consolidate the emerging IMAC around the Food Program. Yet, governance limitations and changing logics within Leuven2030 have had a negative impact on the survival of both IMACs, bringing to "Big-MACs" leading implementation stages. A similar process takes place within the VLAR, which reproduces the structure of decision-making bodies within Leuven2030, to which only more resourceful actors can commit. Meanwhile, alternative practices from the social economy and individual citizens lack the time to participate without endangering the survival of their own activities; these are not "supported" either by Leuven2030 nor the City to overcome their limitations to engage in the formal decision-making setting of Leuven2030 and the VLAR. The more the participation in these bodies relies on voluntary work, the higher the chances that vulnerable actors are left out of the IMAC. Likewise, time consolidates as a key resource in IMACs, both to ensure equal power and opportunities to participate for all actors, and to consolidate trust relations and expertise among actors in the food system.

Turning to internal dynamics within IMACs, our research shows that roles in facilitative leadership—stewardship, mediation, and catalyzing—should not only be understood as key elements that *drive* collaborations, as Bussu (2019) implied. On the contrary, we argue that for their survival and the consecution of the collective objectives designed, IMACs require that all roles of facilitative leadership be continuously taken care of. In both IMAC trajectories in Leuven, facilitative roles were taken into account at the onset, allocating specific resources to stewardship and mediation in parallel to the development of specific sustainability-related objectives, i.e., the core team in LNK and the Food Strategy steering committee that later became Leuven2030's Food Program Cockpit. Yet, as elaborated in the previous section the evolution of Leuven2030 has cast several limitations in its performance as IMAC, directly affecting the IMAC governing the Food Strategy, redirecting the attention of project coordinators and facilitators toward implementing projects and meeting sustainable objectives and failing to nurture the network and negotiation processes in the IMAC. The local administration took a similar catalyzing role as they focused on the achievement of the content-specific objectives related to the implementation of the Food Strategy and identified *ad-hoc* collaborations for each one. As not all facilitative roles are being catered for anymore, the follow-up of strategic objectives and the coordination of all actors in the food system are being disregarded. Consequently, the original transformative, systemic, and socially innovative spirit of the IMACs are fading away, and actors that participated in the design of their original objectives disconnect from implementation stages.

Hence, from the trajectory of IMACs in Leuven we also learn that the institutionalization of common objectives set within IMACs requires the parallel institutionalization of the governance structures that enable the IMAC to reach these objectives; this entails the definition of specific roles and responsibilities among actors and stable spaces for conflict, deliberation and negotiation. This is key for keeping IMACs' socially innovative nature and increasing the possibilities for success in the implementation of the common objectives designed.

AUTHOR'S NOTE

To learn more about the research activities, process and outcome, go to the dedicated INSIST Cahier 5 on Governance available at https://insist.earth/.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author/s.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethics Committee Sociaal-Maatschappelijke Ethische Commissie (SMEC) from KU Leuven, n. G 2019 12 1891. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

CM-G and PV coordinated the action research trajectory. CM-G, SN, LC-V, and PV coordinated research activities and analysis of data with students. EB was a key stakeholder informing the research and supporting research activities. CM-G, SN, and LC-V performed most data analysis and drafted and visualized results. All authors of the paper were part of the Editorial Board of the research, guiding the research agenda, methodologies and engaging in research activities, the discussion on results,

contributed to the article, drafted by CM-G, and approved the submitted version.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsufs.2021.788934/full#supplementary-material

Supplementary Figure 1 | The LeuvenGymkhana 2.0 Timeline. JPGE high-resolution version of the timeline exhibited and explained during the Leuven Gymkhana 2.0 tours.

Supplementary Table 1 | Annex 1. List of interviews.

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