Article

FoodLink—A Network for Driving Food Transition in the Lisbon Metropolitan Area

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Abstract: The territory that currently corresponds to the Lisbon Metropolitan Area (LMA) has historically supplied fresh food to the urban population until half way through the 20th century. In 2018, the land use was still composed 38% of agricultural area, supplying 12% of the total food produced and consumed in Portugal. However, the operation of this food system is not subject to any regulations either in terms of spatial planning or land use management and, as such, its impact on sustainability transition in the region is not yet properly known. How to drive food transition in the LMA has thus arisen as a prominent question. In 2019, within a living lab context, the first steps were taken to this very challenging pathway, in which the definition of a food strategy was identified as the priority to sow the seeds of a food planning process. Over the last three years a food network started to operate on a collaborative basis to co-define a set of long-term objectives, a vision for 2030 and a collaborative biannual action plan. This article describes the process on how FoodLink—Network for the Food Transition in the LMA—leveraged the foundations to set up an evidence-based food strategy in the metropolitan area and how its thirty members became committed to cooperating in a science–policy–practice interface for its elaboration. According to principles of action–research and citizen science that implied a direct observation and involvement of the author along the entire process, the results intend to respond to the three objectives of the research by: (i) contributing to the literature on food networks; (ii) describing how the networking process occurred and its main achievements in what concerns a committed action plan; (iii) presenting the first baseline to pursue a food strategy towards the food planning of the city-region. It is understood that these results on how the food transition process is being driven in the LMA may either be inspiring for the construction of similar initiatives in other city regions, within and outside Europe, or may constitute the referential starting point for the future assessment of this ongoing transdisciplinary process.

Keywords: food transition; food network; food strategy; food planning; Lisbon Metropolitan Area

1. Introduction

Cities face intense and rapid transformations in a scenario of generalised uncertainty [1]. The magnitude and acceleration of these transformations indicate that in a century we will witness changes equivalent to those that took place in the previous thousand years [2]. Such a pace of change is unequivocally demanding transformative reactions in the face of the huge societal challenges that worsen in a context of multi-crises. Food is definitely one of the priorities for transition and a critical challenge for urban policy [3,4], as it is particularly affected by climate change, water scarcity, biodiversity loss and threats to public health, as well as by situations of injustice in access to adequate food resources [5,6].

Food planning, as a support for informed and responsible decision-making towards sustainable food systems, is thus a tool for responding to these critical problems and an opportunity for co-creation of adaptive solutions to the impacts of increasingly frequent extreme ecological and social phenomena [7].

Planning the food system embodies a food transition process in which it is possible to reconcile, in an integrated way, various sectoral dimensions of public policies, namely

agricultural, environmental, economic, social, employment, territorial cohesion, spatial planning and urban planning. The main purpose of this transition is the introduction of systemic thinking in local and regional food system planning [8], the reduction of dependence on the global food market, the strengthening of the regional imaginary as the level that mediates and articulates urban and rural contexts, and the need to guarantee the conditions of solidarity, health and well-being of people and ecosystems [9,10]. This process entails the combination of a fertile pool of synergies in which stakeholders representing various food environments operate based on a collective understanding of the food system by sharing a long-term vision and jointly perform real-life interventions [11]. Food policy networks and food councils have already been experienced as possible governance arrangements to sustain multi-stakeholder engagement in food transition processes [12].

Recent years have seen an increasing number of innovative food studies [13] that influence the emergence of local or community-based initiatives in response to the impacts caused by the global food market on the environment and public health, many of them based on the concept of agroecology [14]. On the other hand, the pandemic situation has highlighted the need to strengthen the resilience of food systems, the reduction of food waste and greater attention to proximity production as responses to contingencies or blockages that may interfere with food supply from the global market [15,16]. Furthermore, civil society, especially consumer groups, have shown interest and motivation to bring food issues to the centre of urban politics, placing the food debate far beyond mere food availability, to involve issues of food security, health and environmental sustainability alongside with social justice, bridging the gap between the processes that occur in food systems from production to consumption [17]. Simultaneously, international institutions have reaffirmed the importance of territorialisation of food systems in the urban agenda [18], as an opportunity to articulate food with housing, transport, infrastructure and waste, through innovative models of managing the water, soil, energy and food nexus [19].

These trends, already seen in other countries and continents, had a particular emergence in the first decade of 2000 [8,20], continue to rapidly expand to date [5,21,22]. However, the way these initiatives are described and disseminated does not always allow for distinguishing those that emerged from a spontaneous bottom-up community based on a more social and activist nature, developed at the individual or community scale and closely associated with practices in the field of urban agriculture [23], from other generated predominantly on a top-down formats related to the promotion of food self-sufficiency of a given urban population based on a spatial planning logic [24] in the peri-urban or urban-rural context. While the first, by its unpredictable origin, tends to respond to a very local need through a community-based network [25], the latter implies more complex and coordinated governance solutions, considering their political and strategic dimension, in close articulation with spatial planning and management instruments at the regional scale [7,8,16,26]. Nonetheless, likely due to this complexity, few initiatives have developed integrated food policy instruments. Those that have done so have mostly opted for: (i) food strategies to the implementation of international agenda guidelines, such as the 2030 Sustainable Development Agenda and Sustainable Development Goals (SDGs) [27]; or (ii) public food procurement mechanisms [28].

Depending on the legal reference framework and the dynamics of each case, food strategies can anticipate the food planning process if understood in a more formal way, by defining the main guidelines for the planning exercise [29]. But they can also result from the articulation of a set of more informal initiatives and practices, whose strategic formulation allows to enhance, to expand or to consolidate results, e.g., the London Food Strategy [30].

Another upper level of complexity is the ambition to relate a food strategy and food planning processes to the spatial planning instruments within the public policy arena [5,16]. This is where the regional scale arises as an intermediation of national and local territorial dimensions to facilitate the establishment of a food systemic vision [31], the application of an intersectoral approach and opens the opportunity for the constitution of an effective

institutional cooperation [22,28] where bottom-up and top-down initiatives may interlink on a collaborative basis to operate the envisioned food transition in the city region.

The food transition in the LMA is the first food policy-oriented initiative of this kind in Portugal. It started with the constitution of a network to co-define a food strategy that encompasses territorial and socio-ecological dimensions from a spatial and land-use planning perspective, which intends to include both formal and informal processes to respond to the aforementioned societal challenges at the regional level [32].

1.1. Contextualising the Food Transition in Europe

In the context of global change, food supply of cities is probably one of the key topics to be considered in agri-food policies and urban strategies worldwide [18,20,22,33,34]. By 2050, the area required to feed the world's population will have to increase by about 70% relative to the area used in 2010. If we consider the high consumption of natural resources and energy in the production, processing and distribution of food on a global scale and its impacts on the environment and public health, it is easy to understand the need for rethinking food systems to ensure the reduction of their ecological footprint through models of sustainability and resilience [35]. It is estimated that the current global food system is the origin of 30% of greenhouse gas emissions, with agricultural production being responsible for 70% of global water consumption and for soil degradation, air contamination, significant habitat alteration and biodiversity loss [36].

On the other hand, recent social and economic phenomena triggered by COVID-19 reveal that today's society is strongly influenced by global connectivity and local vulnerability, and it is critical to ensure ways to produce, process, distribute and consume food according to principles that accelerate the transition to greater environmental and social justice [37–39], contributing to achieving the seventeen SDGs of the United Nations Agenda 2030 [40,41]. Furthermore, the combination of the complexity of global change, especially climate change, with the energy crisis and the intensity of the planetary urbanisation process, anticipates a chain reaction in the food supply market of cities in which rising prices and reduced food security will be unavoidable threats for the urban population and local entities [16], even more disquieting in some countries outside Europe.

Thus, the transition to sustainable food systems presupposes the implementation of initiatives aligned with a significant number of communications from the European Commission to the European Parliament for this purpose, which include policies such as the European Ecological Pact and strategies such as 'From Farm to Fork' (2020), the 'Biodiversity Strategy 2030' (2020) and the 'Food 2030—Pathways for action' (2020). They have clearly reinforced the importance of a robust and resilient food system that works in all circumstances and is able to guarantee access to a food supply in quantity and quality, at affordable prices for citizens, drawing attention to the interrelationships that exist between health and well-being, ecosystems, supply chains, consumption patterns and planetary boundaries. Taken together, those goals point to the need to look at food strategies as an opportunity to integrate diverse policies in the common interest of human health, ecosystem health and the health of the economy, underlying the concept of 'one health' [42].

Alongside the definition and implementation of food strategies, one of the most expedient ways to mitigate the impacts of the food system on the environment is through dietary change towards increased vegetarianism and veganism at the expense of meat and dairy consumption [22,36]. To this end, a healthy diet of universal reference consists largely of the consumption of vegetables, fruits, whole grains, legumes, nuts and unsaturated oils; includes a low to moderate amount of seafood and poultry; none or a low amount of red meat, processed meat, added sugar, refined grains and starchy vegetables. Additionally, reducing food waste presents itself as an effective way to decrease the ecological footprint of food production. These measures, along with the adoption of principles of a healthier lifestyle, lead to increased demand for foods that are also healthier, fresher and from short circuits [27,43].

Thus, the implementation of a food strategy involves not only the various components of the urban food system, but also the sociocultural context in which stakeholders interact proactively to produce, transform, purchase and consume food [44]. A collaborative network may thus ensure the production of sustainable food, the availability and accessibility to acquire it, and the sustainability principles attended to along its value chain. Consumer adherence to this type of food is inevitably anchored in consumption practices through a complex interaction between cultural, political, ethical, financial, behavioural and social factors [45,46].

Many are the concepts that have recently emerged, or that are being revisited, to respond to this trinomial between ecology, economy and well-being. That is, for example, the case of bioregional planning, which advocates the coevolution of natural cycles with an agri-food culture between urban and rural regions, removing from the urban region the excessive centrality it has had in recent decades [47]. In the certainty that it is not possible to solve all problems with one equation, integrated and transdisciplinary approaches are essential for building resilience of ecological and human systems in the face of unprecedented changes and extreme phenomena. Furthermore, the convergence between idealist and realist principles could facilitate the transformation of today's dominant transitional thinking [1,48].

These were the assumptions that underpinned the constitution of a food network of stakeholders to lead the food transition in the LMA by sharing a vision for a food strategy definition within the framework of food planning and spatial planning, the process of which is described below.

1.2. Driving the Food Transition in the LMA

The LMA includes 18 municipalities (Figure 1) with roughly 2.9 million inhabitants, which corresponds to 28% of the resident population in Portugal, where 35% of the national gross domestic product is generated. In 2018, the soil with agricultural land-use corresponded to about 38%, where pastures are included, followed by forest areas in approximately 32% of the territory, making clear that food production along with environmental services have a significant role to play in the urban food system. Over the last decade the metropolitan population increased by 1.6% and the agricultural area enlarged by 3.6%, highlighting the relevance of urban–rural connectivity [49]. The regional spatial plan in force is from 2002, which is expected to be revised in 2023. Half of the municipal master plan approvals were before 2009 [50].

Driving the food transition in the LMA deserves particular attention when considering mostly three aspects related to the lack of territorial awareness in Portugal. First, spatial planning and land use management are notably weak, largely because society does not understand or recognise their practical usefulness due to a lack of territorial culture [51] and to the clear detachment between spatial regulations and land-use practices. Second, food is neither approached through a spatial planning lens nor as an innovative dimension of territorial policy, only vaguely sounded within the academy in a very exclusive niche of debate. Third, there is no tradition of long-term cooperation through networking possibilities as a multi-stakeholder commitment to achieve common goals. Driving food transition in the LMA deserves particular attention, especially when considering these three aspects related to the gap of territorial awareness in Portugal. However, what the current global crisis stresses is the need to rethink territorial development as an immediate response to urgent multisectoral transition, in which food transition is of central importance [52]. In this sense, making food transition a priority of food planning breaks new ground in Portugal, as an integrative and collaborative approach between sectors, scales, institutions and actors based on networking practices [11,53].

This article describes how food transition in the LMA has been driven through the constitution of a food network between 2019 and 2022. On the one hand, it explores the network as an ecosystem of co-creation within citizen science, focusing on the response to societal problems and the democratisation of the processes of participatory innovation to

produce knowledge, as well as the adoption of new organizational and decision-making practices [45]. On the other hand, from another angle, it suggests that a food transition network might leverage the integration of public policies and regional strategies leading to the territorialisation of the food system, approached by spatial planning instruments in particular, starting from the involvement of key institutions and the commitment of decision-making members [42,54].
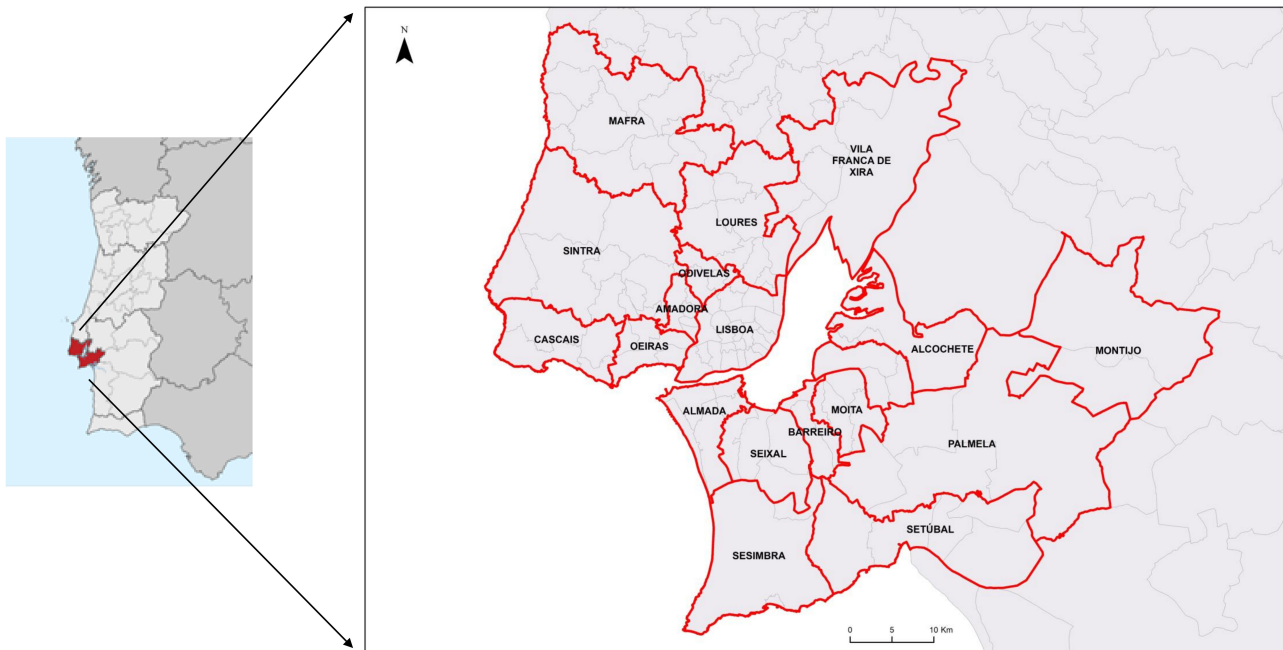

Figure 1. The LMA location in Portugal and the administrative boundaries of its 18 municipalities.

Both approaches presuppose the consolidation of the current food network and the construction of an inclusive future model of metropolitan governance [7,55] in the LMA to actually ensure the assignment of a long-term regional food transition, namely by repositioning forces that include the increasingly frequent solutions of self-governance, associated with new opportunities for eco-communitarianism and open localism, complementing centralised, national and international orientations in achieving goals that counter the hegemony of globalisation [10,56,57].

This research has three objectives:

i. To contribute to the literature that utilizes food networks, assemblages and/or translocal governance as a critical lens to understand how networks unfold and the range of tools they employ to deliver sustainability and food security outcomes across different places and scales [11];

ii. To describe how the networking process occurred and the main results that have been achieved so far by the food transition network in what concerns a committed action plan;

iii. To present the first baseline to pursue the food strategy towards food planning for the city-region.

2. Materials and Methods

The methodology undertaken in this research combines state-of-the-art scientific knowledge with an experiential knowledge of an action–research pathway conducted by the author of this article who has been deeply involved in the co-coordination of the entire food transition process as a representative of the academic sector along with other representatives from the public policy sector and organizations that undertake the action.

The first objective of the research consisted of a literature review that was progressively tailored and expanded to respond to the networking process, from 2019 to 2022, which encompassed the conceptual definition of food transition and the selection of cases where food policy networks have influenced the setting up of integrated food policies at multiple levels, particularly the those based on a territorial and socio-ecological perspective. Moreover, several food planning alternatives were researched to inspire a preliminary model for the co-definition of LMA food strategy development.

The second objective of the research rested on the description of the networking process as a sequential empirical initiative made in the field of transdisciplinary research along with sustainability and citizen science research. It includes the involvement of a considerable diversity of stakeholders from outside the academia, as representatives of the food systems' actors, into the research process in order to integrate the best available knowledge, reconcile values, preferences and priorities, as well as to create ownership for problems and solution options, in this case for disentangling the food transition process in the LMA. Transdisciplinary, community-based, interactive or participatory research approaches are often suggested as appropriate means to meet both the requirements posed by real-world problems as well as the goals of sustainability science as a transformational scientific field [58]. This process requires a certain time of exploratory integration until the conditions of personal and institutional interaction have been met to allow collaborative work for the co-definition of principles and sharing of objectives and commitments according to a common vision. It results from the content analysis of the minutes of the twenty-four meetings that took place over the three years of the research time frame. All the minutes have circulated through all the participants and members of the network to be validated and approved as procedures. This analysis consists of describing the co-definition of an action roadmap in which the starting point corresponded to an institutional framework where the food transition was a topic partially unknown until an ending point where the baseline for starting the elaboration of an evidence-based metropolitan food strategy was built.

This component of the methodology is established in two phases: the first is related to the constitution of a motivated network of stakeholders to improve acknowledgment on food transition topics and to participate in the transition process, and the second to the establishment of a chart of principals and commitment to decision-making procedures, action plan and contribution to the elaboration of an evidence-based food strategy (Table 1).

The first phase occured within the living lab of a Horizon 2020 project (ROBUST). The second phase was expected as an institutional assumption of the food transition network and to fundraise resources to implement the action plan for a bi-annual experimental period. During this phase another Horizon 2020 project (FoodClic) was approved.

The implementation of this action roadmap allowed to reach the necessary conditions to discuss and to configure the model for the co-definition of the food strategy, as the priority that the food network pointed out, to be developed in phase 3, under Institute of Social Sciences of the University of Lisbon (ICS—ULisboa)'s coordination over 2023.

The methodology that comported the third objective of the research for the conceptualization of the food strategy model started from reviewing the theoretical and conceptual principles stated in literature, regarding the urgency to endure food transition in a global change scenario [18,22,40,47,59] combined with the result of the principles established by the network over phase 2 [60] and the preliminary debate entailed within the network, especially with the two regional coordination institutions, the Coordination and Regional Development Commission of Lisbon and Tagus Valley (CCDRLVT, the public entity that coordinates regional development and spatial planning policies) and the Lisbon Metropolitan Area (AML, the public entity that represents the 18 municipalities with the same administrative region name) that have a special role on its implementation and further development in the framework of the regional public policies.

Table 1. Timeline of the main steps towards the creation and consolidation of the food network for the food transition in the LMA by the ROBUST project in 2019 until the FoodClic project launched in 2022.

Food Network Progress	2019	2020	2021	2022
Phases	Phase 1			Phase 2
Number of members	15	8	20	30
Number of meetings	2	4	11	11
Main outputs	• ROBUST living lab • Project establishment and constitution of a working group on food transition.	• Food transition network consolidation—concept, objectives and vision definition • Stakeholders and good practices mapping in LMA • Lobbying on the integration of food transition in regional strategic 2030 programmes	• Public food transition webinars • International networking • Position paper • Governance for 2022–23 • Fund raising • ROBUST project ending	• Action Plan for 2022–23 • Public official presentation • Signing of a chart of principles and commitments • FoodClic project kick-off • Food strategy set-up

3. Results

3.1. Phase 1—Constitution of a Food Transition Network

The constitution of the food transition network arose in the search for an answer to the question on how to feed the LMA according to principles of energy efficiency associated with the production, storage and transport of food, with economic, social and environmental gains, particularly in terms of climate change [59,61–63]. To this end, 15 entities of local, regional and national actors have been invited to form a working group under the living lab of the H2020 Project ROBUST—unlocking rural–urban synergies, coordinated by the CCDRLVT. The ICS-ULisboa led the working group in defining its objectives and a strategic vision for the next decade [60]. This process took place over approximately two years (2019–2021), with monthly meetings attended by representatives from twenty entities. Initially, the meetings were held online, during the pandemic, and then in person, where the monthly team meeting was combined with visits to good practice projects underway in the region (Figure 2).

The first tentative name for the food network was the Metropolitan Network of Agri-food Parks (MNAP), defined as a diverse set of territories, initiatives and actors in the LMA with the aim of planning and managing its food system. It is expected to operate through a collaborative platform of public and private entities that pursue sustainability principles in relation to the soil, water, biodiversity and energy nexus, with a view to safe, healthy, inclusive and responsible food for the metropolitan population. It is intended to stimulate a circular, resilient and local economy, to address climate adaptation, to create employment, to promote health and well-being and to respect social equity [64]. The MNAP will also support the Mediterranean diet and strengthen cultural identity while encouraging scientific and technological innovation in the various components of the food system, contributing to the training, capacity building and awareness of active agents of the food system and engaging in increasing food literacy and the transition to digitalisation.

As a vision, the MNAP aims to ensure that in 2030 about 15% of the food supply in the LMA is based on sustainable modes of production, low carbon distribution networks and proximity food circuits that meet the criteria of inclusion and food safety. The MNAP products will be available and accessible for responsible food consumption for all citizens of LMA and will be an asset for the promotion of responsible and ethical tourism. The

MNAP offers opportunities for recreation, gastronomic and cultural tourism throughout its territory, constituting an innovative initiative that contributes to the socio-ecological and economic enhancement of the LMA and to the strengthening of urban–rural synergies.

Figure 2. Examples of MNAP meetings.

The entities and players that join the MNAP have committed themselves to contributing to the implementation of a roadmap of action for the next decade, structured by six objectives:

1. Define a food strategy for the metropolitan food system in articulation with spatial planning and land-use management;
2. Support the organisation of short circuits to guarantee short supply chains;
3. Create a collaborative platform of public and private entities for the operationalisation of the strategy and the dynamization of the MNAP;
4. Create an own brand that certifies MNAP products;
5. Promote a communication campaign for responsible eating and disseminate the MNAP brand;
6. Define and implement a training, capacity building and education programme.

The first phase of the implementation of the MNAP was assumed as experimental, over two years, and focuses primarily on two pillars: social justice and environmental justice. In the first case, commitments are envisaged through public procurement, namely between agricultural producers and school canteens, hospitals or other institutions providing meals, as well as vulnerable communities/groups of the metropolitan population. It is therefore intended that the MNAP will be progressively expanded to the population with an interest in constituting a consumer committed to the MNAP. In relation to environmental justice, and within the framework of territorial planning, pilot production areas, which constitute examples of multifunctional good practices, may be integrated into municipal and metropolitan ecological structures [60]. In the first case, established fundamentally through food public procurement, namely between agricultural producers and school canteens, hospitals or other institutions that provide meals, as well as vulnerable groups of the metropolitan population. It is therefore intended that the MNAP will be progressively expanded to the population with an interest in constituting a consumer committed to the MNAP. Regarding environmental justice, and within the framework of territorial planning, pilot production areas that constitute examples of multifunctional best practices could be integrated into municipal and metropolitan ecological structures.

3.2. Phase 2—Consolidation of the Food Transition Network

With the conclusion of the ROBUST project, in November 2021 and once the founding principles of the food network were established, it evolved to proceed with an action programme for the biennium 2022–2023, which brought together more than a hundred actions proposed by all members of the network. The diversity of the proposed programme and the respective potential dynamics that could be generated from it made clear that the conditions were in place to start to put in action the food transition in the LMA. Furthermore, the growing number of entities that joined the network and its recognition by the national government, more specifically the Minister for Territorial Cohesion, at the network public presentation on 7 June 2022 resulted in the beginning of a new stage in which the network was renamed FoodLink—Network for Food Transition in the LMA. At this ceremony, at the headquarters of the LMA, alongside the public presentation, a letter of principles and commitments was signed to pursue three main strategic axes and their respective goals: axis 1—planning the territory for food transition; axis 2—food transition as a vector of socio-territorial cohesion; axis 3—empowering and educating for food transition. This letter of principles and commitments was signed by thirty entities that were organised in three working groups, each one in charge of a strategic axis. Axis 1—Objectives

- To define a planning and management strategy for the metropolitan food system in a systemic and participatory manner, with a view to safeguarding land with strategic potential for agricultural production, integrating this theme into territorial management instruments and into the various public policy instruments;
- Promote territorial planning processes oriented toward guarantying greater food security, economic and energy efficiency, environmental and landscape quality, biodiversity conservation, adaptation to climate change, job creation and promoting urban-rural dynamics, circular economy and local development;
- Enhance the metropolitan ecological structure according to a multifunctional and systemic approach, integrating, whenever possible, areas of sustainable production,

connecting urban and rural areas, enhancing production opportunities and the well-being of the local population;
- Promote good management practices of the soil, water, biodiversity and energy nexus and promote their dynamization/concretion.

Axis 2—Objectives

- To support the organisation of short food supply chains, reinforcing the link between producers and consumers;
- To promote the reduction of food waste in the different dimensions of the food chain (production, transformation, distribution and consumption);
- To support the existence of local, formal and informal markets, in order to create valorisation mechanisms for the purchase of local products;
- To promote social agriculture for its contribution to cohesion and the revitalisation of community life;
- To promote sustainable production practices to contribute to a healthier and more sustainable food system that values local cultivated varieties.

Axis 3—Objectives

- To promote the operationalisation of the strategy and dynamization of the FoodLink network;
- To promote a communication campaign for responsible eating and promotion of the FoodLink brand;
- To promote the Mediterranean diet;
- To promote the training, capacity building and education in food literacy of all the actors of the metropolitan food system;
- To promote the adoption of sustainable food practices;
- To integrate national and international networks that position FoodLink in a wider context and enrich its experience and knowledge.

The entities that constitute FoodLink at the date of the signing of the Charter of Principles and Commitments (June 2022) included representatives from seven types of organisations:

- Academia—N = 4
- Central and regional public administration—N = 5
- Local administration—N = 13
- Local development associations—N = 2
- Business sector—N = 3
- Logistics—N = 1
- Cooperative and associative sector—N = 2

FoodLink thus operates as a co-creation ecosystem to find the most appropriate answers at the interface between food and societal challenges from participatory processes that actively promote food transition in the LMA. The food strategy is therefore a means to achieving this end.

Considering the European funding framework 2022–2027, the FoodLink action plan intends to integrate the territorial planning of the food system, both through the implementation of public policy instruments that foresee it in a generic way, and by contemplating it in the framework of territorial management instruments such as the Regional Spatial Planning Programme and municipal master plans.

In 2022, the project H2020 FoodClic—Integrated Urban Food Policies and Planning Frameworks—How City-regions Connect, Link and Include to Transform Food Systems for Co-Benefits (2022–27) began. The aim of the project is to build strong science–policy–practice interfaces to develop evidence-based and integrated food policies and render planning frameworks food-sensitive, creating more progressive and resilient urban food environments that empower citizens (particularly from deprived and vulnerable groups) to access, afford and choose healthier and more sustainable foods. This project therefore strengthens FoodLink's conditions for the development of a metropolitan food system

planning and management strategy in the framework of territorial planning, zoning and management, in addition to supporting the organisation of short food supply chains at local and regional level. Processes of co-creation of collaboration and capacity-building platforms between public and private entities will also be generated for the operationalization and dynamization of the food strategy.

3.3. Phase 3—Conceptual Model to Set-Up the Food Strategy

The model presented is a starting point for the definition of the metropolitan food strategy that brings together the premises established by FoodLink and public policies from the national to local level with a governance framework that articulates the public and private sectors on two axes. The cross-cutting of these fundamental axes not only emphasizes the relevance of regional scale but also opens room for the strategy to be consolidated as the interlink of different regional public policy sectors (intersectoral dimension) and different modules of the regional food system (intermodular dimension) (Figure 3).
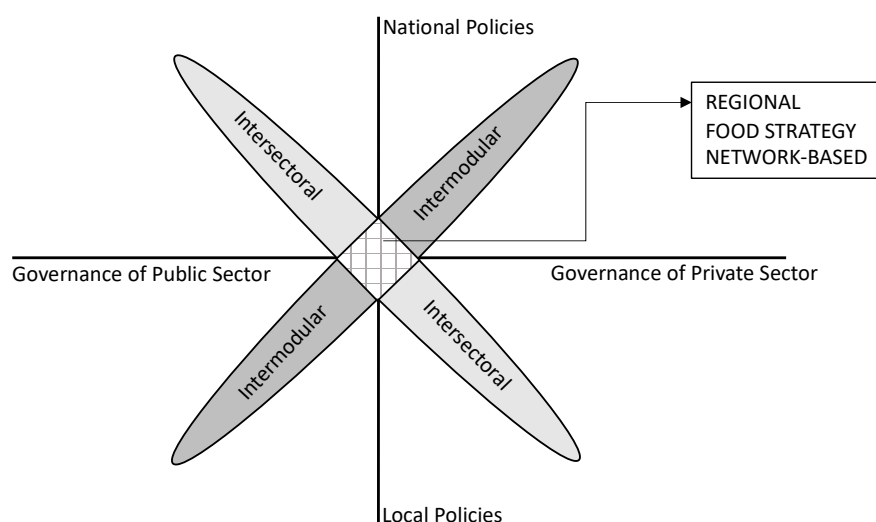

Figure 3. Conceptual model for the definition of the food strategy in the LMA.

Although FoodLink itself has established the governance model for its current two-year trial period, ensured by a coordinating core that brings together three entities (academy, regional public administration and local administration), this structure should evolve to facilitate and ensure the collaborative implementation of the food strategy and the pursuit of the network objectives.

To this end, and even assuming that the current governance structure should evolve and always be established by the network itself, it is strongly recommended to ensure the strengthening of articulation with territorial policy, to make possible a coordinated intersection of the various components of the metropolitan food system, always keeping in mind the necessary flexibility and adaptability of a permanent co-creation process.

Therefore, in Figure 4, the articulated top-down and bottom-up axis allows for compromising solutions between the production, distribution and consumption of food products through short supply chains operating according to the principles of circularity. In addition, it defines the guidelines for the integration of the food strategy into food planning, while responding to concerns of environmental and food justice towards a real food transition with positive impacts on the regional food system.
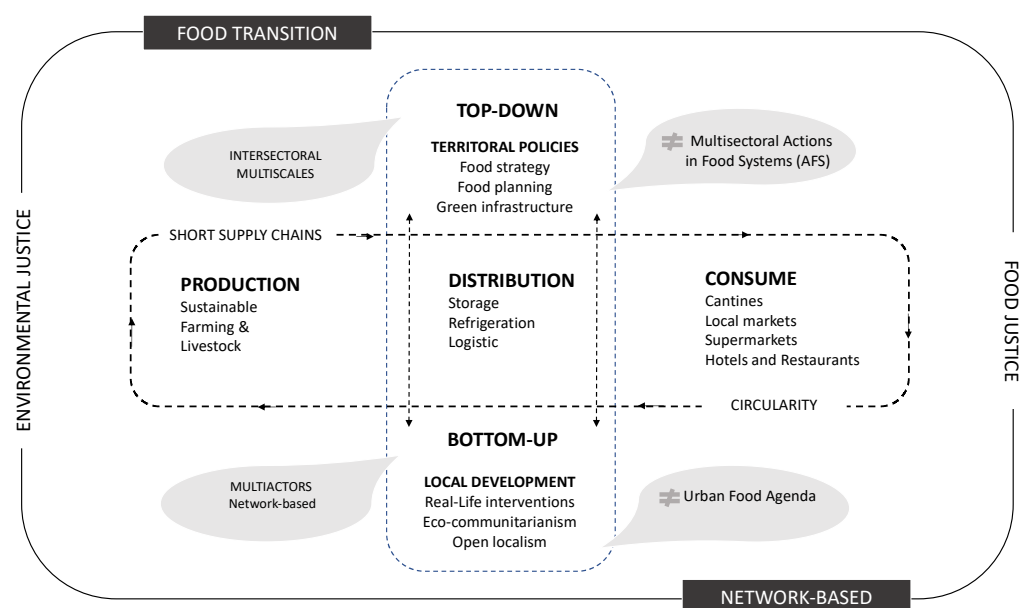
Figure 4. Conceptual model for food strategy definition and implementation in the LMA.

This strategy is also fundamental to contributing to correcting the national food ecological footprint, which is estimated to be three times the biocapacity of ecological systems to regenerate, due to the excessive consumption of meat and fish in the diet of most Portuguese [2]. It is essential that such goals are embodied in food planning strategies well-articulated with spatial planning and management instruments and appropriate governance models [11] so that they allow for relating the use of natural capital in boosting proximity economies from an ecological perspective, namely through the provision of ecosystem services and circularity for greater resource efficiency [46,52].

A food planning strategy should therefore correspond to a policy integration framework that provides scientifically grounded objectives based on quantifiable and spatialised evidence of the different components of the food system along with the promotion of proactive multi-stakeholder dynamics for the adoption of healthy diets and sustainable food production and consumption to provide a secure food system to achieve broad human health and environmental sustainability [65].

Yet, the strategy should mirror the food, water and energy nexus, which presupposes the evolution of the concept of nexus thinking as a statement of the evolution and transition of current scientific thinking and the renewal of the paradigm for integrated management of different sectoral and cross-sectoral concepts. It emphasises innovation, planning, systematic design, foresight and adaptability, identifying linkages between key sectors of strategic planning to improve the efficiency of natural resource management [4], e.g., through the integration of productive landscapes and ecological connectivity into green infrastructures [66].

4. Discussion

The results describe what FoodLink achieved so far and open room for the next phase of the food transition process—the definition of a regional food strategy. However, despite its positive impact on gapping the food dimension in the LMA policy agenda, it is important to recognise the initiative is now in its infancy as only very preliminary outcomes have been achieved considering the much longer pathway necessary to reach the long-term vision and objectives in a time of global uncertainty. As known, collaborative networks are made of many interconnections and interdependent nodes that may break down or fail in a single node due several institutional, political or economic unforeseen events, such as shifts in the political system, lack of financial resources or changes in the regional strategic priorities. Therefore, discussing the obstacles and opportunities for the future efficiency and

effectiveness of the FoodLink on driving the food transition in LMA is of great importance to predicting the impact of its operation on the metropolitan territory and society. The discussion refers mainly to the vertical axis of Figure 4, as the foundational principles aspects of FoodLink to drive the food transition in the LMA enclose both top-down and bottom-up initiatives. This regards the first, entailed through the stage of integration of multi-level territorial policies, whilst the second dimension is discussed from a governance perspective, namely through foreseen drivers and barriers.

4.1. The Integration of Multi-Level Territorial Policies

As mentioned before, food policy offers an interesting arena for intersectoral public policy integration. One of the fundamental articulations that needs to be enhanced is related to urban and rural policies' pursuit of a food planning exercise, since urban policies are mostly dealt with at municipal level and agricultural and rural development policies at national and European level, namely under the Common Agricultural Policy. This lack of policy integration creates a tremendous gap that often impacts weak territorial cohesion.

In the case of agricultural policy, even though it is a national scope instrument, the Innovation Agenda for Agriculture 2020–2030 (RCM No. 86/2020, of 13 October) highlights the need to transition to sustainable food, providing the following targets:

- Increase by 20% the level of adherence to the Mediterranean diet.
- Set up 80% of new young farmers in low-density territories.
- Increase the value of agri-food production by 15%.
- Ensure 50% more agricultural area under recognised sustainable production schemes.
- Increase investment in research and development (R&D) by 60%.

These targets should be brought and adjusted to the context of agricultural innovation in the LMA, namely in the areas to be designated as agri-food parks, with an experimental and demonstrative character.

On the other hand, although the National Programme for Spatial Planning Policy (PNPOT, 2019) does not explicitly provide for the food transition, the topic is fully aligned with its territorial agenda, with measures provided for critical changes in environment and climate, as well as to the promotion of a greater territorial culture. In terms of principles, challenges and guidelines this agenda aims to manage resources sustainably, to increase urban metabolism and urban-rural cooperation, to strengthen ecological connectivity, reinforce territorial cooperation deficits through networking and innovation in territorial governance.

At regional level, the Lisbon 2030 Regional Strategy is based on a framework of values present in the vision proposed for the Lisbon region that defines the approach followed by the strategic development matrix, highlighting the resilience dimension—faced with the worsening of global systemic risks, the metropolitan development process will seek to ensure ecological social and economic resilience, increasing the capacity of the various natural, social, economic and infrastructural systems to resist shocks based on the ability to value diversity, the capacity for collective learning, innovation and adaptation, intersectoral and interinstitutional cooperation and self-sufficiency, especially in terms of food. This strategy considers it essential to counter the process of disorderly expansion of urbanisation and territorial fragmentation from the valorisation of rural and natural spaces and the strengthening of rural–urban relations, for which the planning of the metropolitan food basin, boosting local and proximity-based production and short food production and consumption chains, is a priority. The strategic matrix was structured based on five priority areas for metropolitan development, namely:

- Four domains of thematic nature (innovation and competitiveness; environmental and food sustainability and mitigation of natural risks; social cohesion and demographic sustainability; mobility and sustainable connectivity);
- One area of territorial scope (urban development and transformative change).

This range of areas and their respective sub-areas identify the set of sectoral and territorially based public policies that are essential to promoting economic and social dynamics. The development process of the LMA should pay special attention to 11 sub-areas considered vital by regional actors, including the food system and rural development.

When considering the territorial management system, where and how food planning may fit in must be identified, constituting an aggregating theme for various sectors of territorial planning.

Still, at the regional scale, the role of intermediation of visions and strategies between the national and the local level stands out. Food planning for the regions is thus of crucial importance not only to enable the organisation of networked initiatives, but especially due to its capacity to dynamize urban and rural areas and may respond to the valorisation of rural land and the consolidation of environmental protection and ecological connectivity structures. The elaboration of regional spatial planning programmes appears as an opportunity to integrate food system planning into territorial models and innovative solutions that respond to current societal challenges, while strengthening regional and national territorial cohesion. This regional planning should thus be geared towards ensuring greater food security, economic and energy efficiency, environmental and landscape quality, biodiversity conservation, climate change adaptation, job creation; promoting urban–rural dynamics, circular economy and local development, as a result of a well-articulated strategic vision between the various territorial management instruments and other sectoral public policy instruments.

At the municipal level, the planning of the urban food system may take place through very diverse initiatives but, whenever possible, it should be integrated into the municipal master plan as a new approach to the classification of rural land and the installation of structures and equipment in the territorial model, embodied in the land use map and respective regulations. As much as possible, the sustainable production areas should be integrated into the municipal ecological structure, configured as part of the green and blue infrastructure, through which urban and rural areas of a municipality may relate to recreational opportunities and with the production of ecosystem services that ensure better health and wellbeing to the local population. At this level, urban production spaces should be an integral part of this ecological infrastructure.

4.2. The Governance Challenge of FoodLink

Food networks are emerging as many different constellations of policy entrepreneurship and collective leadership. FoodLink emerged from a combination of a meeting point of both top-down and bottom-up willingness to make the food transition occur. One of the big challenges for the governance network's success is to conciliate in time and space the food planning process through the collaborative elaboration of the food strategy and the coordination of the action plan at the local or community level, such as the promotion of food literacy with greater ecological, cultural and civic awareness in contexts that facilitate a healthier, sustainable and inclusive diet.

The pursuit of FoodLink's goals will thus largely depend on the success of the governance model in taking advantage of aspects such as:

- The existence of an already-established network of 30 entities, committed to an action plan, which hopefully will be progressively expanded;
- The evidence of food planning as a lever for regional sustainability along with the great biophysical conditions for sustainable and healthy food production;
- The integration in a European network through various projects and respective opportunities to share knowledge and experiences;
- Additionally, on the ability of the members to anticipate and overcome obstacles, such as:
- High demand for institutional cooperation on sharing responsibilities for public policies integration when placing food planning as a mainstream of the regional policy agenda;

- High demand for an efficient collaborative governance, specially providing a voice to all the members and representatives of the food system in an equitable manner;
- Weak habits of establishing a long-term commitment to convert objectives and intentions into action;
- Lack of leadership to ensure the interlink of multi-level and multi-stakeholder initiatives in a proactive networking atmosphere.

Overall, this discussion could be significantly enlarged if other methodological approaches are applied, such as the use of surveys and interviews for the networking process evaluation, which will certainly be developed in upcoming research. However, despite all the limitations and weaknesses of a qualitative method based on a process description where the researcher was and still is directly involved, it provides a vivid experience and a contextual picture to be considered as the reference situation for food transition in the LMA within a certain time. These results could thus be seen both as an inspiration for other initiatives in other locations within and outside Europe, and as the basis for the assessment that, from now on, is expected to take place on a regular basis.

5. Conclusions

From the description and discussion of this recent trajectory of food transition in the LMA it becomes clear that this is just the beginning of a long way to go. The existence of a food network may not guarantee a sustainable and healthy food supply of the metropolitan population by 2030 by itself. There is an enormous complexity of predictable and unpredictable factors that determine the success or failure of the initiative in a time of uncertainty. Most likely the implementation of the action roadmap that has been established by FoodLink for the coming years will occur through a co-learning from trial-and-error process in which governance aspects assume particular relevance. When considering the two dimensions of discussion, governance seems to be more exigent and sensitive, comparing to the top-down approach more dependent on the integration of public policy design and implementation. However, there are some remarkable innovative dimensions that deserves attention from a researcher's perspective:

- Starting a food transition process through the constitution of a multi-stakeholder and multi-scale food network that has identified the elaboration and implementation of an urban food strategy as a priority is unusual. It is a more common strategy to be upstream of the governance model in charge of its implementation than it is be downstream;
- In the first phase of the food network operation (2019–2020) it was possible to influence the integration of food planning and food sustainability with several strategic and funding instruments of the regional programmes to accomplish European and national ambitions on the 2030 horizon;
- An open debate on the integration of food planning into the regional spatial planning trough the Regional Spatial Planning Programme, intermediating the National Spatial Planning Policy Programme and municipal master plans is seen as a step forward to the territorialization of food policies, especially when other food strategies in the country do not take this spatial and land use dimension into account, fitting more within the scope of socio-economic development;
- The co-definition of a common vision and objectives by entities with little tradition in sharing responsibilities and commitments was a positive sign to strengthen the virtuosity of cooperating on a research–policy–action basis. If this experience progresses well, it may contribute to the construction of a new inclusive model of metropolitan governance;
- The strategic and independent positioning of academia in this virtuous tringle influenced the mobilization of stakeholders, supported the coordination of information and the workflow, amplifying the ambition of progressing from food transition towards medium/large scale processes of sustainability transition.

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