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Scaling Local Bottom-Up Innovations through Value Co-Creation

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Abstract: Bottom-up initiatives of active citizens are increasingly demonstrating sustainable practices within local ecosystems. Local urban farming, sustainable agri-food systems, circular supply chains, and community fablabs are exemplary ways of tackling global challenges on a local level. Although promising in accelerating towards future-proof systems, these hyper-localized, bottom-up initiatives often struggle to take root in new contexts due to embedded socio-cultural challenges. With the premise that transformative capacity can be co-created to overcome such scaling challenges, the current work addresses the identified gap in scaling bottom-up initiatives into locally embedded ecosystems. While how to diffuse such practices across contexts is not straightforward, we introduce a three-phased approach enabling knowledge exchange and easing collaboration across cultures and ecosystems. The results allowed us to define common scalability criteria and to unfold scaling as a multi-step learning process to bridge identified cognitive and context gaps. The current article contributes to a broader activation of impact-driven scaling strategies and value creation processes that are transferable across contexts and deemed relevant for local ecosystems that are willing to co-create resilient socio-economic systems.

Keywords: co-creation; cross-cultural learning; innovation ecosystems; mission-driven innovation; resilience; scaling strategies; urban food systems; value creation process

Citation: Marradi, C.; Mulder, I. Scaling Local Bottom-Up Innovations through Value Co-Creation. *Sustainability* **2022**, *14*, 11678. https://doi.org/10.3390/su141811678

Academic Editors: Raffaele Silvestri, Mariantonietta Fiore and Francesco Contò

Received: 22 July 2022
Accepted: 13 September 2022
Published: 17 September 2022

1. Introduction

As societies worldwide are going through rapid and dramatic changes, cities around the globe are claiming a leading position in the transition towards more sustainable urban lifestyles needed to address the sustainable development goals. To keep up with the pace of our society's development, there is an urge to create urban systems that can fit human needs within the planet's possibilities [1]. Exemplary urban systems that can address global challenges at a local scale are urban food systems that can be conceived of as a set of activities ranging from production through to consumption [2]. Socio-economic ecosystems that illustrate the value of local co-production while tackling global challenges require 'new ways of innovation—a shift in thinking, doing and organizing' [3] (p. 573) to become resilient and future-proof. In this reality, cities serve more and more as a laboratory for experimenting with new ways to address global challenges on a local scale. In other words, cities can be seen as resilient socio-economic systems where different actors interact at different levels to tackle the so-called wicked problems [4]. In this regard, an increasing number of local coalitions are popping up in different cities across Europe to experiment with innovative solutions. These coalitions are oftentimes led by mixed groups of practitioners and active citizens who share the common goal of bringing social and system transformations to their respective contexts, for example [5,6]. Such local insurgent activism is also referred to as bottom-up initiatives or social innovation: 'new ideas (products, services, and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations in the civic context' [7]. The scaling of these types of mission-driven bottom-up initiatives is oftentimes perceived

as a promising framework for achieving urban sustainability transitions [8], including the transformation of food systems. Despite the remarkable success of many bottom-up initiatives, their specificity and strong connection to their territories sometimes make it hard to scale their practices and achieve larger societal impact or system changes. In other words, the social impact sector is recently growing by 'building the capacities and culture for innovation, and, as a result, holds great promise for transformative breakthroughs' [9]. In the current work, we take the premise that transformative capacity can be built through value co-creation and experimenting with new ways to address global challenges on a local scale, which is relevant to innovating current urban systems. To overcome contextual and local social challenges, multiple stakeholders and actors from different sectors find ways to collaborate and build the needed capacity for successful scaling, (e.g., through sharing learnings and exchanging experiences). Thanks to their dynamic nature, which integrates diversity through interaction in local networks, cities proved to be a fruitful context in which these collaborations occur and through which new tools, methods, instruments, products, processes, policies, and services are generated [10,11]. Next to that, the design field is evolving into a promising way of facilitating innovation in the public realm and triggering systemic change [6,8,11–13]. The value of design in tackling widespread global challenges for systemic change is drawing more and more attention [7,10,11,14], resulting in increased awareness and recognition of design-enabled innovation. Indeed, design is especially useful in the complex process of adaptation and value creation required for the systemic embedment of an innovative solution. Furthermore, it plays a vital role in acting toward change by diffusing the needed capabilities and empowering bottom-up, local initiatives to thrive [10]. In keeping with Scott [12], we refer to the integrated function of design that brings together a variety of skills, steps, and stakeholders who are involved in the urban context.

In the current work, we explore the value of design tools and methods in sustaining bottom-up initiatives, emerging across various urban contexts, to scale their impact on societal change. We studied multiple types of local bottom-up initiatives that vary in their scaling strategies. When scaling innovations across contexts, multiple stakeholders are involved and need to interact to pursue change; those moments of interaction and co-creation are necessary to build ownership, exchange knowledge, and achieve successful scaling. In this way, we aim to contribute with related key learnings that can be adopted and shared across a wider audience of urban initiatives willing to scale their practice and build resilient socioeconomic systems. Whereas food systems are key for such local change processes, the current work refers to food systems to illustrate how outcomes and learnings can be leveraged and transferred in the agro-food context, allowing the ecosystem's actors to learn from their specific local and social challenges when scaling from one context to another.

An Ecosystem of Locally Embedded Initiatives

The context of study is the European capacity-building program Designscapes [15] to better understand how they replicate and scale their practices from one context to another. The program aims to ignite the transformative power of design for sustainable and responsible innovation across Europe. Part of the ambition to build capacity for urban transformations, the European program has funded roughly a hundred mission-driven initiatives that share a common ambition of tackling complex societal challenges. Thanks to this multi-layered setup, the current study also benefits from the urban arena as a living lab and regards the urban citizens as experts of their daily life and further allows for more proactive citizen involvement in addressing urban challenges. In this way, the program provides an ecosystem of emerging initiatives that experiment with sustainable lifestyles and disruptive businesses aiming to demonstrate how society can be radically and systematically changed; such initiatives are usually composed of multidisciplinary teams of social entrepreneurs, activists, or change-makers who demonstrate their ability to understand the needs and values of the local ecosystem and to create value for the

community. Although a common ambition of replicating and scaling their sustainability practices from one context to another is shared, the initiatives differ in the topics addressed, ranging from youth empowerment, community resilience, or the livability of cities to climate change and sustainable consumption, e.g., urban farming initiatives, co-creation of local food systems, peer to peer sharing, and social cohesion. The transformation of local food systems is exemplary for the topics addressed by the pilots, even though the participating pilot projects do refer to a larger variety of urban sustainability challenges. Further details are provided in the method section. The next section describes the contextual background and positions our 'multi-step process' for scaling across socio-cultural urban contexts.

2. Background and Motivation

2.1. The Rise of Social Innovation Sector and Bottom-Up Local Initiatives

The social impact sector only recently started growing more by 'building the capacities and culture for innovation, and, as a result, holds great promise for transformative breakthroughs' [9] (p. 2). 'But for various financial, political, and organizational reasons, many effective approaches operate only at a small scale' [9] (p. 2). Indeed, one of the biggest challenges faced by social innovations that want to scale and achieve a larger impact relies on the lack of financial sustainability due to their size and structure. It is the case for most of the initiatives considered for this study, which are small and hyper-localized. Some of them rise as a solution for specific problems of a particular area or target group, while others are trying to tackle more general global issues (e.g., the crisis of values, crisis of democracy, climate change, and footprint) at a local level. Moreover, they are dependent on specific local resources [16] and embedded within the cultural norms, institutional routines, and values of a specific context. Additionally, these small-scale social initiatives face a lack of capabilities and resources, which hinder their potential to grow [17]. Consequently, replicating, expanding, or adapting the project to a new context is a challenge for bottom-up local initiatives, and several factors need to be considered when scaling, especially in a different environment. Hence, there is a need to address the question of what is being scaled in the first place, i.e., products, organizations, or impact and then uncover strategies for doing that.

2.2. The Concept of Scaling

This section unfolds the spectrum of scaling from a theoretical perspective and provides orientation regarding the various existing scaling strategies to better understand how social innovation can be replicated or scaled to have more impact. Scaling is generally used to refer to the growth of innovation. Following the Cambridge Dictionary, to scale something up can be generally defined as: 'to increase the size, amount, or importance of something, usually an organization or process' [18]. Whereas this is true for most types of business innovations whose scaling size could be measured by the amount of profit generated, scaling social innovations and bottom-up local initiatives do require a different lens of inquiry and new strategies for success. For instance, by achieving a larger impact on society, which means being able to benefit and bring value to a larger pool of people [19], through innovation addressing and responding to social needs, while improving their overall quality of life [7]. In keeping with Moore and colleagues, scaling is not only about organic replication or adaptation (scale-out); to change the system, you have to change the rules of the game (scale-up) but also change the mindset and the culture of a particular 'institution' (scale deep) [20]. Figure 1 shows different ways of scaling innovation and corresponding scaling strategies.

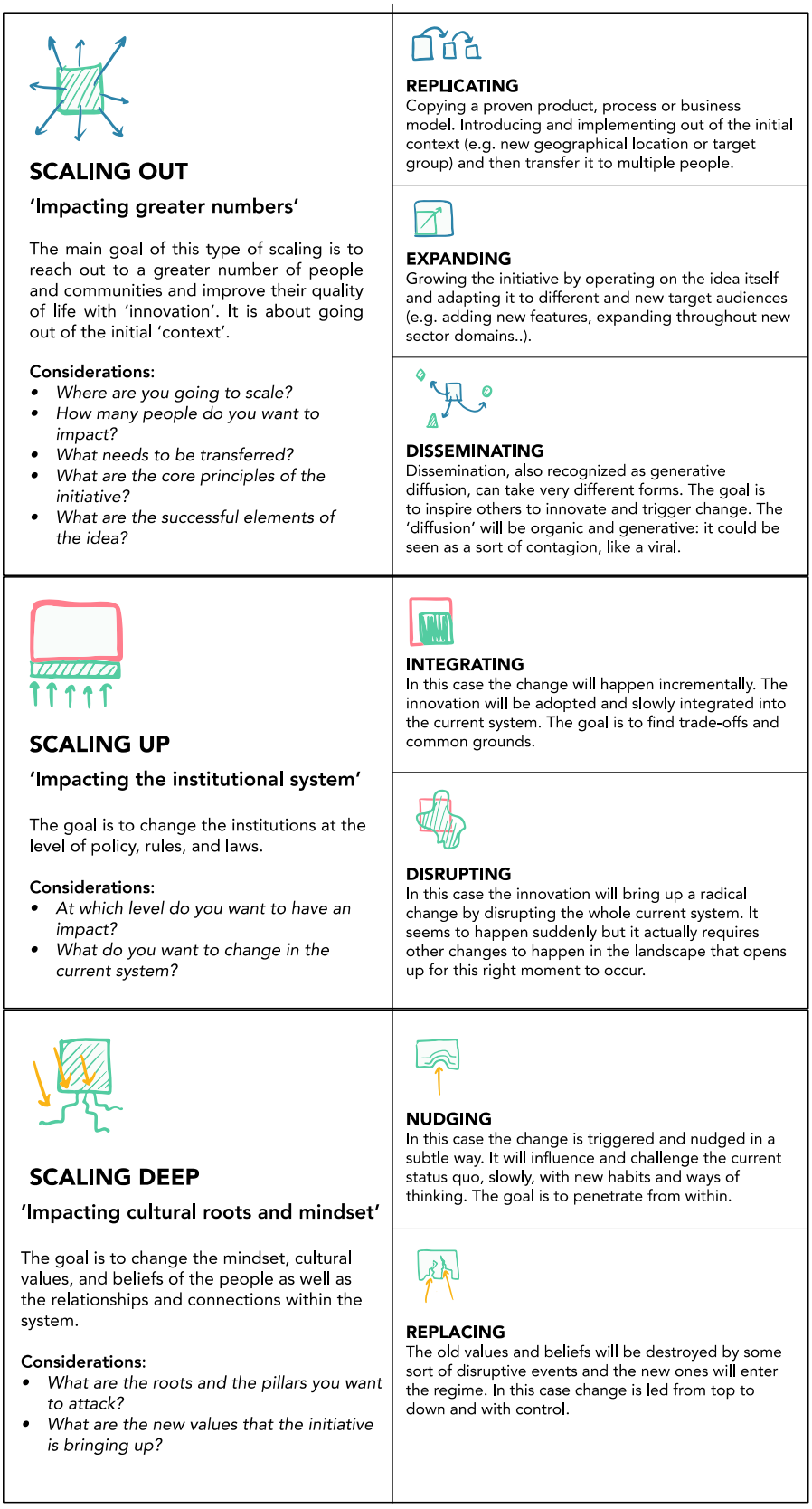

Figure 1. Our conceptual scaling framework and corresponding strategies.

Scaling can have different 'meanings' and can take very different 'forms', namely: implementation (generating a sustainable business model for long-term impact), sharing

knowledge with other communities (e.g., community of practice), and/or 'replicating across contexts' (e.g., replicating a successful practice in one hospital to another one) [20,21]. The literature research on the concept of scaling and its strategies [22,23] shows that there is no 'one solution fits all', as scaling is not a linear process [10,24]. To simplify this complexity, two essential steps can identify what scaling strategies have in common: for successful implementation, initiatives need to identify what to scale and decide how to do so [22,23]. However, scaling is a rather organic process depending on specific contextual circumstances. Indeed, bottom-up initiatives need to follow multiple 'steps' when scaling. However, these steps to take are not straightforward, and because we refer to bottom-up initiatives that are collocated and thus need to be socially embedded in another local urban context, different factors influence the process of scaling when implementing a project successfully implemented in the context of origin to a new context with differences in local culture, institutions, regulations, citizens, and other cultural and social instances. By 'contextual factors' we refer to anything influencing the innovation's scaling process, from the external world to aspects such as mindset and attitude, organizational culture, capabilities, goals, aspirations, and team dynamics [24]. Whereas these initiatives are deeply rooted in their original socio-cultural context, we expect that, when replicating and implementing their practice in new contexts, bottom-up initiatives need to exchange cultural elements and co-create knowledge with the careful engagement of the local community [10,25,26]. Therefore, scaling requires the exchange of knowledge between multiple parties and stakeholders, an open mindset, acceptance, and collaboration.

Successful implementation requires learning how to get an intervention to reliably work in the hands of many different professionals working in different organizational contexts and with other cultures [27]. In other words, preserving the benefits a local context could provide without disrupting it while integrating the initiative into its network of stakeholders and citizen communities. When implementing bottom-up innovation in a new context, innovators need to integrate integrity without disrupting but preserving their mission, culture, and beliefs and align those with the community's local culture, needs, and values. Hence, scaling could be seen more as a process of matching the different aspects and elements, such as the needs of the citizens, interests, visions, goals, and aspirations. Therefore, building capacity, disseminating knowledge, and a culture of collaboration are key to achieving systemic change. If the goal is to disseminate knowledge, then guidelines, models, or a framework to initiate the replication somewhere else need to be provided [21], enabling other initiatives to scale through knowledge diffusion. However, the simple creation of passive guidelines could not be as effective as building capacity more collaboratively throughout co-creation activities and exchange. Indeed, as stated by Pierre Bordieu: 'knowledge is socially constructed, and the human capability to capture and understand complex knowledge is culturally constrained' [28]. This step would entail building capacity and triggering a mutual learning environment between the parts involved. Collaboration and networks play a crucial role in enabling innovators to replicate the culture and disseminate knowledge to achieve a larger impact. In other words, to achieve systemic change and a larger impact on society, replicating a solution may not be enough and the exchange of knowledge through a collaborative culture is what is needed for mission-driven ecosystems to reach their goals. Whereas societal challenges are deeply rooted in the behavior and perception of citizens, forming local networks and collaborating with multiple stakeholders is key to scaling and implementing innovations in new contexts [11].

In the next section, we present the setup and structure of our research process and the methodology followed to learn about scaling while unfolding the practices and strategies adopted by the selected mission-driven bottom-up initiatives to replicate their innovation in new contexts.

3. Method and Materials

The current study used 'Research through Design' as an overarching methodology [29]. Next to studying the design practices of the selected initiatives [30], we have utilized design artifacts to trigger participants' reactions and other otherwise non-observable phenomena, enabling the researcher to capture insights and create new knowledge. Since one of the goals is understanding and unfolding the scaling process and practices of the participants involved, we found this approach helps to uncover otherwise non-observable phenomena and dive deeper into tacit layers, while, at the same time, empowering the initiatives by discovering new scaling strategies, and helping them co-create and exchange knowledge with the local community and stakeholders of the new contexts where they intend to scale their innovation.

3.1. Overall Process and Data Collection

Throughout the process, a theoretical and empirical perspective have been iteratively combined, to explore and study the local ecosystem of the initiatives and their design practices. Given our exploratory aims, the alternation between a theoretical and empirical perspective was considered appropriate to gain more holistic and in-depth knowledge about those scaling processes and challenges. Data were collected through multiple research and design activities: (1) literature research on the concept of scaling and its strategies; (2) semi-structured interviews with the Designscapes pilots and other social entrepreneurs, innovators, and academic experts; (3) in-depth interviews as a follow up to dive deeper into certain topics that came out during the first interview session; (4) informal follow-ups such as emails in addition to the regular community meetings organized by the European Capacity Building Program through Zoom; (5) context-mapping activities such as generative exercises, which were sent out to the participants in the form of sensitizing toolkits; and (6) co-creation sessions with three selected Designscapes pilots in the form of online workshops held through the digital platform of Miro. Section 3.4 details the process and setup. Multiple design elements and research activities were developed to find answers to the main research question: 'How do local bottom-up initiatives scale across contexts and how can we support them to overcome potential challenges when implementing their innovations and/or practice in new urban contexts?'

Figure 2 pictures the overall three-phased process followed in our research. The research started with a wider scope (e.g., literature research on a general understanding of the concept of scaling as well as the meaning of social innovations) and narrowed down throughout the phases.

3.2. Three Research Phases: Learning, Exploring, and Intervening

The first two phases of the study were deliberately open, involving a wide variety of participants to get different perspectives and insights. During research phases one and two, we involved a wider set of bottom-up local initiatives that participated in the European Building Capacity Program, Designscapes [15]. We invited a total of eight pilots that use a variety of design methods such as co-creation with citizen and governmental bodies to tackle the complexity of urban challenges. Carrying research activities with these initiatives helped to unravel the scaling processes and strategies followed when replicating and implementing social innovations across urban contexts. The conceptual scaling framework and corresponding strategies, as introduced in Figure 1, inform the development of design methods and activities to understand how to aid in scaling locally embedded mission-driven innovation ecosystems.

Semi-structured interviews were set to collect data and map the context of the local ecosystems involved. Of the invited pilots, five Designscapes pilot projects participated in the interviews: Start Park (n = 3), Ticket to Change (n = 2), T.Ospito (=2), Agroplaza (n = 1), and City Hearing Log (n = 2); interviews were held on Zoom and planned for an average duration of 30–40 min each. The following main topics were addressed during the interviews:

- Understanding their (local) context and mapping their network of stakeholders to derive the main contextual factors that influence, enable, or undermine the scaling process.
- Uncover main challenges and spot opportunities for design interventions, helping them to reframe their challenges into strategies to scale and implement the initiatives in new contexts.

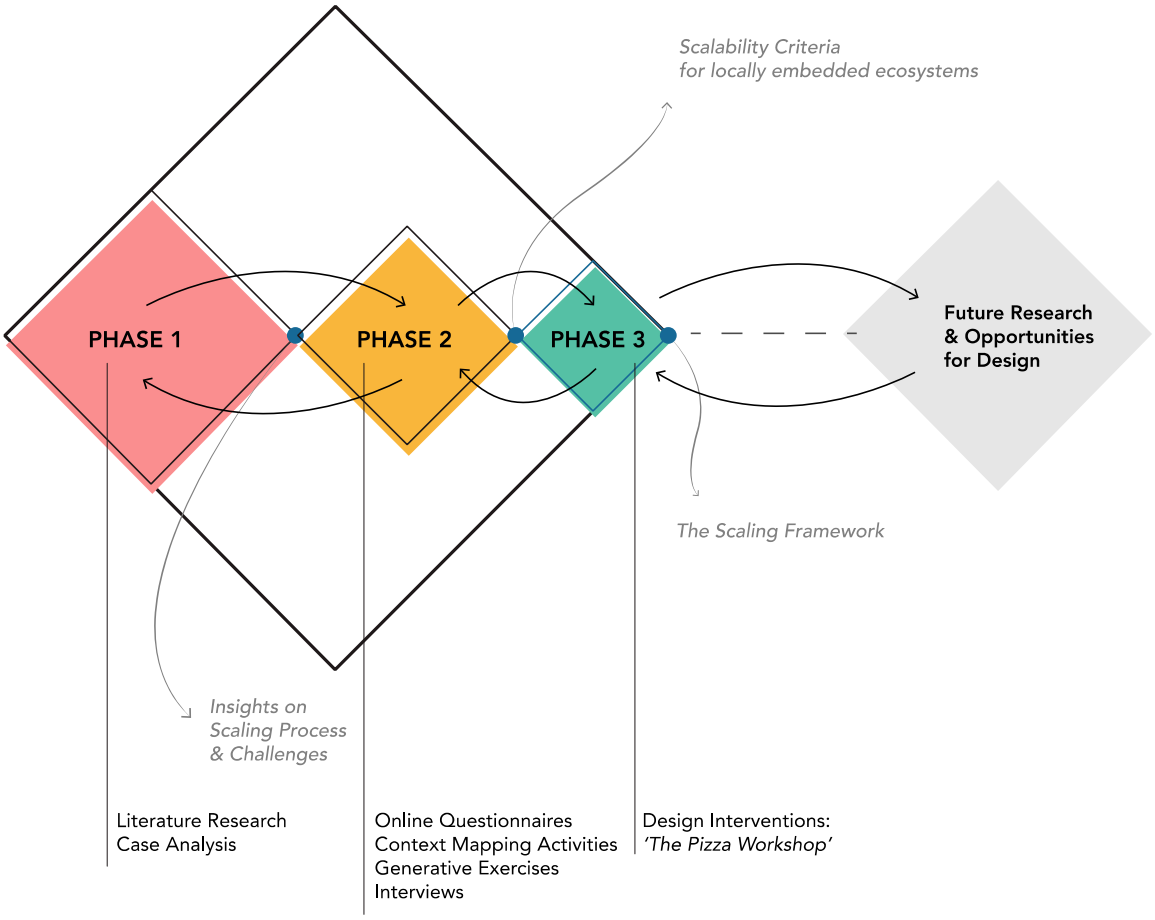

Figure 2. The three-phase iterative process highlighting research and design activities and the corresponding outcomes.

After the first round of interviews, the second round of in-depth interviews was organized to capture deeper insights into the underlying challenges of scaling and the socio-cultural and economic dimensions influencing the capacity to scale across contexts.

In both rounds, interviews were both recorded and transcribed. In addition, the interviewer took notes. Raw data were first paraphrased and then coded iteratively. Connections and relations were created between themes and clusters to give more meaning and depth to the data. In this way, a systematic perspective and lens have been adopted. In the end, data were triangulated and clustered to identify common patterns and themes, as presented in the results section. The results from the interviews and the other design activities provide the basis for uncovering the scaling process and key steps these initiatives follow when replicating in new contexts. The main findings during those interviews were the fact that 'networks and local partnerships' are critical to enabling the initiatives to achieve a larger impact and be able to scale and replicate across contexts.

Along with these interviews, other context-mapping activities and generative exercises were also performed to collect and analyze data. Once a better understanding of the local ecosystems and their scaling practices were gained through empirical research and multiple design activities, a scaling process map was sketched as a result of this part of the research

and used to structure design interventions and co-creation sessions held during the third research phase.

For a deeper understanding of the social, cultural, and contextual challenges associated with scaling-out social projects in new places, we selected three out of the eight pilots to continue the study through design interventions and co-creation sessions [31]. Due to the complexity of a process such as scaling and the abstractness of the concept of culture and knowledge, co-creation sessions were considered appropriate to engage with these initiatives and set an at-ease atmosphere which could prompt them to dig deeper into their context, challenges, and scaling processes.

Quotes following the transcriptions have been analyzed and processed using mapping techniques during co-creation sessions with the initiatives to derive the specific clusters of challenges.

3.3. Three Types of Mission-Driven Local Ecosystems

Although each pilot addresses different challenges and adopts different scaling strategies, they share a common challenge to replicate local bottom-up initiatives responding to social and sustainability challenges from an urban context A (the context of origin) to another urban context B (this could be a different city either within the same country or in a different country). Therefore, we conceive the Designscapes pilot projects as local ecosystems where multiple stakeholders collaborate and are involved: each pilot has two collocated teams (in contexts A and B) that collaborate to successfully implement and replicate the project in another context. All representatives of the extended ecosystems of each pilot were invited to participate in our study, however, actual participation depended on their availability, and consequently, not all participants took part in each activity. For the interviews we required someone that could represent the pilot; exemplary representatives were the project leads or project initiators of the project, but we also had the opportunity to talk with the replicators and the people from the local municipality 'receiving' that project. Usually, two or three representatives were present during our research and design activities. Hence, the pilots selected were intended to be representative of the rich variety of types of bottom-up initiatives that exist but had in common the following features: bottom-up, hyper-localized, small-scale, non-profit, and mission-driven. Based on key results and insights gained during the initial research phases, we selected those three types of mission-driven local ecosystems that illustrate local responses addressing global issues on a local and eco-systemic level (see Table 1).

Table 1. Selected initiatives that represent three different types of local ecosystems: community-driven, process-focused, and service-related.

Initiative Description	Classification/ Orientation	Problem Addressed	Impact Generated	Scaling Goal
Ticket to Change A community of mentors and young talents, a 'school' that trains young talents in Sicily to become entrepreneurs through the support and collaboration with 'mentors' (entrepreneurs, local companies).	**Community-Driven** Not for profit, mostly aimed at generating societal/communitarian value. Addressing social and economic sustainability, through community building	Tackling the problem of youth unemployment and local economy stagnation in agricultural areas.	Youth empowerment, job creation and local economy regeneration. Creating meaningful relationships among actors that can continue working, finding sustainable financial support.	Laying down and (co) creating an infrastructure and eco-system for the local community, while replicating culture and knowledge.

Table 1. *Cont.*

Initiative Description	Classification/ Orientation	Problem Addressed	Impact Generated	Scaling Goal
Start Park A scalable co-design process to build resilient ecosystems to fight climate change.	**Process-focused** Not for profit, mostly aimed at generating societal/communitarian value Addressing environmental sustainability (climate change).	Addressing the challenge of climate change (CC).	Awareness-creation to sensitize people regarding the problem of climate change through the co-creation of resilient local ecosystems. Engaging the community in co-designing local solutions and green-blue infrastructure (GBI).	Replicating co-creative practices and processes, while expanding awareness about environmental sustainability.
T.Ospito A service that aims at creating a welcoming environment for caregivers coming to a hospital to assist their beloved ones, by putting them in contact with a local community of 'neighbourhood friends'.	**Service-related** Not for profit, mostly aimed at generating societal/communitarian value. Addressing social sustainability.	Addressing the well-being issues of caregivers moving out for work.	Empowering vulnerable people to improve their social well-being by building a friendly and inclusive community.	Replicating the service-system while building communities and empowering vulnerable people.

3.4. Setup and Procedure

We assumed that acknowledging and capturing crucial internal and external factors affecting the innovation to scale will help the initiatives to map and find what needs to be scaled. Through a series of activities, the following research questions were answered:

- What are those context factors influencing the innovation and scaling process of the initiatives? What are enablers, and what are barriers (e.g., socio-cultural factors, economic dimensions, local regulations)?
- What are the external and internal aspects that matter most when replicating in new contexts (e.g., the essential ingredients of scaling and the secret recipe for successful implementation)?
- How do those factors influence each other and how do they affect the capacity of the initiatives to scale across contexts?
- How is knowledge co-created and exchanged across communities and local ecosystems?

The goal was to deepen our understanding of the complex socio-cultural ecosystem in which these initiatives are embedded and, at the same time, better understand what influences their capacity to scale. For this purpose, the use of metaphors and visual narratives helped deal with such a complex topic but also enabled cross-cultural knowledge exchange and collaboration among the participants. In this specific case, we used food as a metaphor: on the one hand to easily relate with, and on the other hand, food is quite versatile to explain the concept of scaling across contexts. We held two (online) co-creative sessions that we named 'Pizza workshops', as detailed in Table 2. The sessions were carried out online using Zoom and the creative platform of Miro, see Figure 3. The mapping activities within the Pizza workshops enabled the participants to articulate what and how to scale.

Table 2. Setup and structure of the Pizza workshop following the scaling steps.

Pizza Workshop: Set-Up of the Session	
Research Goal	A deepening in the understanding of the complex socio-cultural ecosystem initiatives are embedded in and uncovering the contextual factors influencing the capacity to scale.
Research Questions	What are those context factors influencing the innovation and scaling process of locally embedded ecosystems? How do those factors influence each other and what is the relation between them? What are enablers, and what are barriers? What role socio-cultural and economic factors play in those scaling practices? How is knowledge co-created and exchanged across communities and local ecosystems?
Structure and Process	
n° Sessions	Three sessions were organized; one initiative per session.
Participants	For each initiative the participants of both urban contexts were included (e.g., representatives of the city hall of the receiving context, the initiators of the project from context A, the team of context B).
Icebreaker/Introduction	We used the 'analogy technique' [32] to set the scene and narrative of the creative session. We used the analogy of food to explain the complexity of what 'scaling local initiatives to new contexts' means. Since scaling is such a complex topic and could be defined and interpreted in various ways, the analogy helped to scope out the 'meaning of scaling' as a multi-step process. We assumed scaling into a new local ecosystem is like replicating a traditional recipe to a new country (e.g., the recipe of the Italian pizza) where primary ingredients, resources, and tastes of the people may be different.
Activity 1 CAPTURE WHAT TO SCALE Goal The goal of this activity is to acknowledge what needs to be preserved and what will need to be changed when replicating in the new context. Metaphorical narrative/Analogy used The Grocery Phase: What do they have in the fridge? Which ingredients do they need to buy to make the pizza in the new context? Exercise: Mapping the local context and its resources, acknowledging differences and similarities to be able to capture what to scale.	Following a theoretical multi-step scaling process: first understanding what can be replicated or needs to be adapted and then how to implement those elements, participants were invited to start brainstorming what should be replicated as it is and what could be instead adapted to the new context. As illustrated in Figure 3, in the session, we made use of metaphorical prompts and images to spark creativity, fun, and engagement. Participants used the images of food we provided to brainstorm about ingredients necessary, and then they placed those in the (image of the) fridge. This helped to make the mapping exercise more concrete and tangible (drag & drop, moving element, seeing, and relating concepts to images . . .). From the exercise and following discussion, multiple elements came out: those are the essential 'ingredients' to transfer, which will ensure the initiative will not lose its purpose and roots when going to a new context (in metaphorical terms: preserving the original taste, the ingredients that make the pizza a pizza). After acknowledging what they have and what they need, we asked them to grab the photo of the 'carry' and imagine going to a supermarket to buy the essential ingredients lacking (e.g., knowledge, money, resources). With acknowledgement of what to scale they could identify and map the resources needed to bridge the (social, economic, cultural, or political) gaps.
ACTIVITY 2 DEFINE HOW TO SCALE Goal Finding strategies to be able to implement the initiative in a new socio-cultural context. Metaphorical narrative/Analogy used Making the Pizza: a new 'adapted' recipe How can they make the pizza together with the local actors of the new context? How will they collaborate and co-create? How will they implement the recipe there? Exercise: Exchange and co-create knowledge about scaling (best) practices. Co-develop strategies for scaling in the new context.	With the knowledge gained in the previous activity (1), participants are now asked to reflect, share, and discuss what they think could be the most crucial influences and challenges of scaling and implementation in the new context. *What could prevent them from succeeding?* After this moment of knowledge co-creation and exchange, we asked participants to collaborate with each other finding a way to successfully implement their initiative in the next context. Challenges and potential barriers were discussed during this activity and each member proposed solutions or practices to overcome those. Following the metaphorical narratives, we used the images of the pizza as a base to let them bring in their own 'thoughts'. The image was filled with post-its regarding ideas, challenges, barriers, crucial elements to consider such as citizen engagement, approvals for the municipality, social media communications, etc.
Research Results	
Main Findings & Insights	Qualitative data regarding the local ecosystems of the initiatives and their scaling challenges. A collection of scaling challenges and 'barriers'. Insights about cross-cultural collaborations and knowledge exchange in the context of locally embedded mission-driven ecosystems. A set of scalability criteria and pillars for mission-driven bottom-up initiatives.

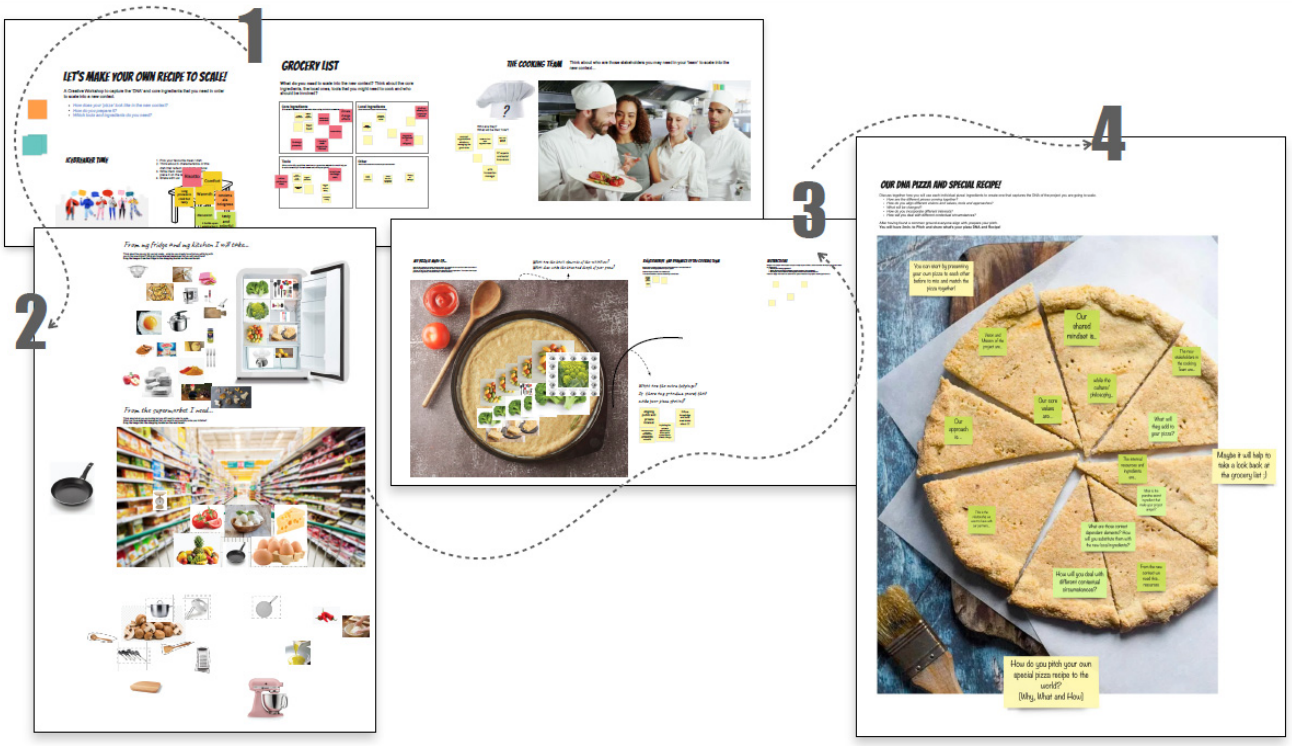

Figure 3. Images from the first session carried of the Pizza workshop as was organized on Miro boards.

4. Results

Unfolding the scaling practices of the bottom-up initiatives involved in the study demonstrated our theoretical notions of scaling strategies and the corresponding complexity in scaling social innovation; the process is much more complex than just replicating a simple idea or concept. Replicating a Designscapes project to a new context is a long journey along which bottom-up initiatives face several challenges. Observations also showed that it is possible to differentiate scaling practices on a theoretical level (e.g., implementation, replication, knowledge transfer), however, in practice there is no proper distinction to make, and eventually, one initiative could mix and match different strategies and adopt multiple approaches and practices to reach their impact goals.

The conducted 'Pizza workshop' helped us outline a scaling framework in the form of a multi-step process that could be transferred and used by different types of initiatives willing to scale their impact across contexts. By uncovering these local ecosystems and their practices, scaling challenges have been identified. Figure 4 shows the identified scaling challenges that have been analyzed and processed to distil common patterns potentially transferable to other initiatives and other contexts. The goal is to empower and facilitate bottom-up initiatives exchanging knowledge about scaling practices, challenges, and strategies, enabling them to replicate and implement their innovation across contexts. The interviews and the co-creation sessions confirmed the importance of distinguishing between what and how to scale. Exemplary lessons regarding the scaling approach and strategies stress that when replicating to another context, bottom-up initiatives should capture the core elements to scale and match those with the local conditions of that socio-cultural context (e.g., local regulations, local culture and beliefs, local activities and communities, existing institutions, and systems); to do so they will need to develop strategies. We used the insights collected during the co-creation sessions, as captured in Table 3, to elaborate the 'scaling framework', specifically a multi-step process approach to scale and implement local ecosystems in new contexts. In the following sections, we present both the framework and the knowledge gained regarding the challenges of scaling and how to overcome them.

Table 3. A selection of quotes illustrating insights gained by participants in the Pizza workshops.

Quote	Participant
I think that we also need to realize the existing differences and valorise them as much as we can. The thing that we are going to find in Sicily, we have to be mindful of the differences in the ingredients that we have on the table.	Giulia, Project Lead and Replicator in Sicily, Ticket for Change
Understanding fully the tools and the ingredients that they have is going to be the first step for us even before starting making the pizza [...] we know that we want to transfer, but we don't know yet, or we are learning how we can transfer it to another organization [...] Learn from the experience in France and to adapt the learnings in the Sicilian context [...] And then you readjust, and then you do it all over again.'	Giulia and Hannah, resp. Project Lead and Designer, replicating the project in Sicily, Ticket for Change
'We know how certain things are working in Sicily. We know certain things about the context now about massaging the situation...'	Giulia, Project Lead and Replicator in Sicily, Ticket for Change
'The program we developed at Ticket for Change France is like a set of knives... depending on what impact/goals we want to achieve then we have to choose what is worth scaling and replication. Not everything needs to be transferred.'	Josephine, Project lead and Initiator of Ticket for Change France
'It's not about the ingredients which look simple, the know-how to make something efficient in fact inspiring is hard to do.'	Hannah, Designer and Replicator of the project Ticket for Change in Sicily
'...then we adapt to what you taste in season with your product very nicely. Then going and looping and doing it all over again. Start re-moulding'	Giulia, Project Lead and Replicator of Ticket for Change in Sicily

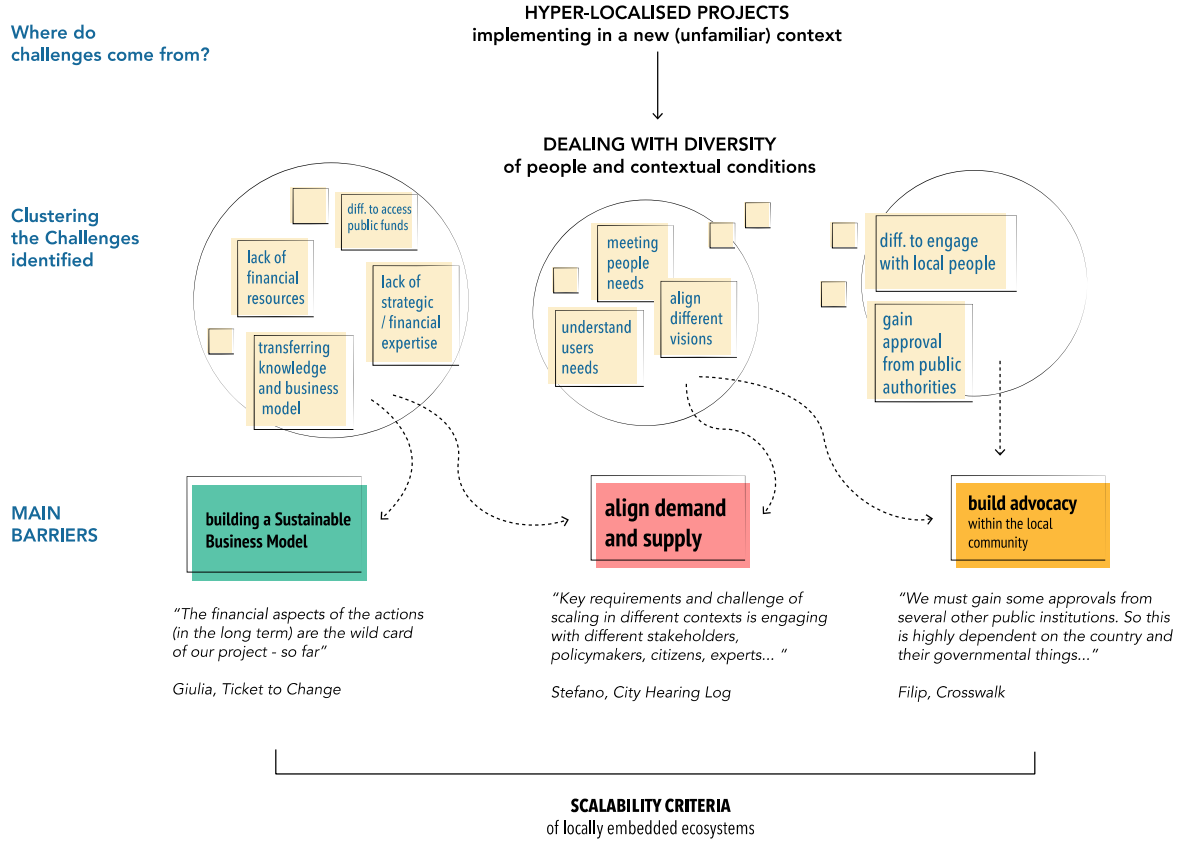

Figure 4. A visual clustering of the common scaling challenges identified from the understanding of the mission-driven local innovation ecosystems, resulting from the in-depth interviews and sessions held with the initiatives and participants involved in the research.

4.1. Common Patterns and Scaling Challenges

From the various research activities carried out and the co-creation sessions held, multiple elements influencing the outcome and the success of implementing and scaling mission-driven innovation ecosystems were derived, further analyzed, and then processed into clusters. Those initiatives, after having found brilliant ideas, struggle to take root in other places even with the right support and resources. The identified challenges were clustered into the following themes: Communication & Engagement; Build and Acquire (right) capacity (feasibility factor); Meeting needs and Align Visions (desirability factor); Context-Specific conditions; and Lack of (financial) resources and Budget (viability factor).

Figure 4 shows common patterns that unify the type of challenges faced when scaling impact across contexts. Table 4 illustrates the outcomes of the clustering of the scaling challenges, resulting from the in-depth interviews and co-creation sessions with the participating pilots.

From the insights highlighted in Table 4 and illustrated in Figure 4, three main barriers have been identified when it comes to scaling. These are: (1) building a sustainable business model, (2) aligning demand and supply, and (3) building advocacy among the local community. However, the most crucial scaling challenge relates to the fact that these initiatives are embedded in the local ecosystems, depending on the local resources, conditions, and stakeholders of that local context. For instance, it is challenging to meet the needs of people with very different values and beliefs or where the social fabric and infrastructure make things work in a different way.

It can be concluded that there is not one single way to overcome those barriers due to the complexity scaling entails and the corresponding contextual factors influencing it, as highlighted in the introduction. Although initiatives did scale in different ways, the identified barriers could be defined as common scalability criteria and principles for social innovators to consider when aiming to sustain and scale social impact. By activating three identified aspects, which are: (1) building networks and activating collaborations with local actors to mobilize the resources needed for implementation in a new context; (2) engaging the community of locals to build advocacy and align with the people's and local community needs; and (3) having a flexible, adaptable, and simple sustainable business model in place to ensure short- and long-term business needs are met; a viable, feasible, and desirable solution could be scaled. Differently put, those aspects can be seen as key ingredients and the secrets for a successful implementation of the initiative, scaling their innovation or practice in a new urban system. For instance, network formation and community building are crucial to enable scaling through replication and knowledge exchange because it allows the mobilization of the necessary resources and builds advocacy among local people, meaning the initiative generates desirability and viability.

Table 4. Quotes per each cluster to identify the scaling challenges.

Theme	Challenge	Quotes	Participant
Communication and Engagement	It is challenging to communicate and engage with different stakeholders' speaking different languages, but also meeting different needs and aligning diverse interests and visions.	'Understand the current fear of our current community to have effective communication and build trust.'	Giulia, Project Lead and Replicator in Sicily, Ticket for Change
		'It is more difficult to engage with institutions and local authorities. They are less responsive to certain innovative ideas...'	Elisa, designer and initiator of Agroplaza
		'One of the biggest challenges is to align with different ways of communicating and here is where understanding fails, especially in European Projects where socio-cultural diversity is enhanced.'	Silvia, engineer and initiator of City Hearing Log
		'Key requirements and challenge of scaling in different contexts is engaging with different stakeholders, policymakers, citizens, experts... each of them has a different problem that want to be solved, different needs and requests we need to accomplish.'	Stefano, Project lead and initiator of City Hearing Log
Meeting needs and Align Visions	The challenge lies in acknowledging the differences between the people and community needs of the new context and understanding how to align everyone's needs.	'You need a local understanding of what the problem is there and what the market is there, you need and you need to create a local current culture that works in the specific context.'	Diana, founder of Extensio
		'The stakeholders we will hire in Lucca are extremely different both in terms of cultural skills and social and cultural level and they are not even all Italians, really very broad.'	Marco, Co-Founder of Start Park
Lack of (financial) resources and needs capacity	The difficulty in taking root in the new local context is due to the changeability and economic uncertainty, the small scale-size of the project, and its social non-for-profit focus. Deal with a minimal budget and find other ways to get funded. A lack of proper financial infrastructures supporting them to scale, mostly because of a lack of trust. The struggle with building up a sustainable business model mainly because of a lack of expertise.	'Acquiring material in a scale amount. Mass production of products requires different knowledge and distribution than just making a one-off product.'	Project lead and initiator of Street Debater
		'Replicating the process in other cities. Setting up crowdfunding campaign and an analysis for impact measurement'	Rita, representative of the city hall of Florence, collaborator of Start Park extended ecosystem
		'...when scaling it is essential to transfer know-how with the network of stakeholders'	Stefano, Project lead and initiator of City Hearing Log
		'The challenge of making the 'innovation' simple and accessible for scaling.'	Elisa, designer and initiator of Agroplaza

4.2. Towards a Scaling Framework

Two gaps have been identified that bottom-up initiatives need to bridge in order to form networks, co-create innovation ecosystems, and implement in the new context: a cognitive gap and a context gap. First, the cognitive gap refers to a lack of knowledge regarding what would be worth scaling in the new context and what should instead be adapted. Since the new context is unknown, the challenge consists of acknowledging the differences between the two context conditions and capturing what to scale. This means being able to capture what has been learnt from the implementation of the project in the first place (e.g., the core elements of the innovation and the success factors) and using it to implement in the new context; in a certain way, it is about replicating a learning process while learning something new of the new context. The second gap found to bridge is referred to as the context gap that relates to a decision-making process. After having understood what should be scaled, those local ecosystems will define how to scale by articulating and activating strategies to implement their impact in the new context, where resources and needs might be different. In this way, the initiative can be implemented and scaled by matching the citizens' needs and resources available within the local context and its ecosystem. Thanks to the various design activities carried out, it was possible to unfold the scaling process as a multi-step process, as detailed in Figure 5.

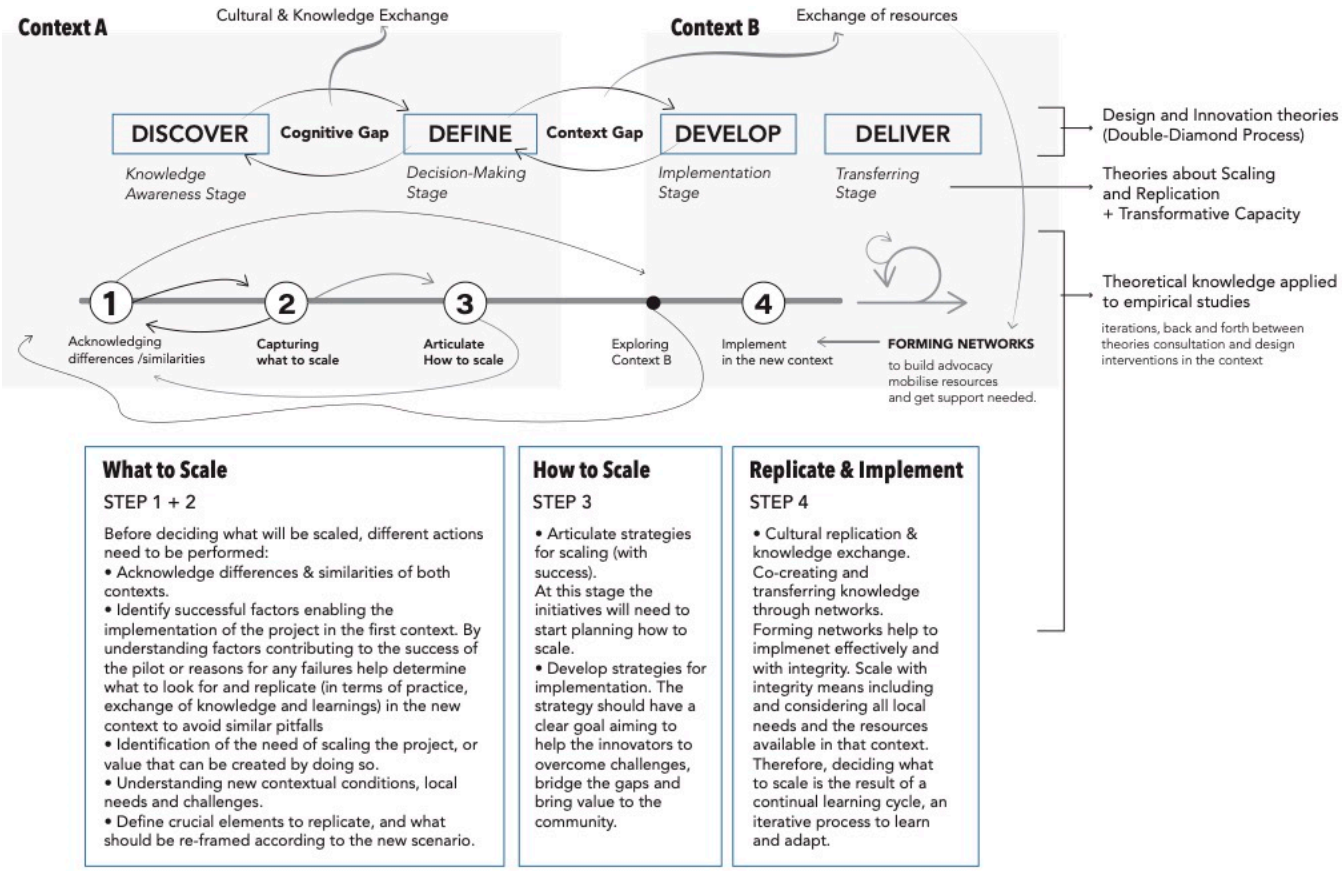

Figure 5. Resulting 'Scaling Framework' guiding the scaling process of bottom-up initiatives and local ecosystems.

Moreover, our findings have informed the design of a toolkit [33] to further support local innovators with scaling challenges by identifying "what to scale" and defining "how to scale". The toolkit consists of a set of strategic cards, as shown in Figure 6, providing suggestions of the potential strategies and approaches the innovators can activate to overcome their scaling challenges. The cards work as 'conversation starters', triggering a discussion

among the involved collaborators to replicate, implement, and further scale the project in the new context.

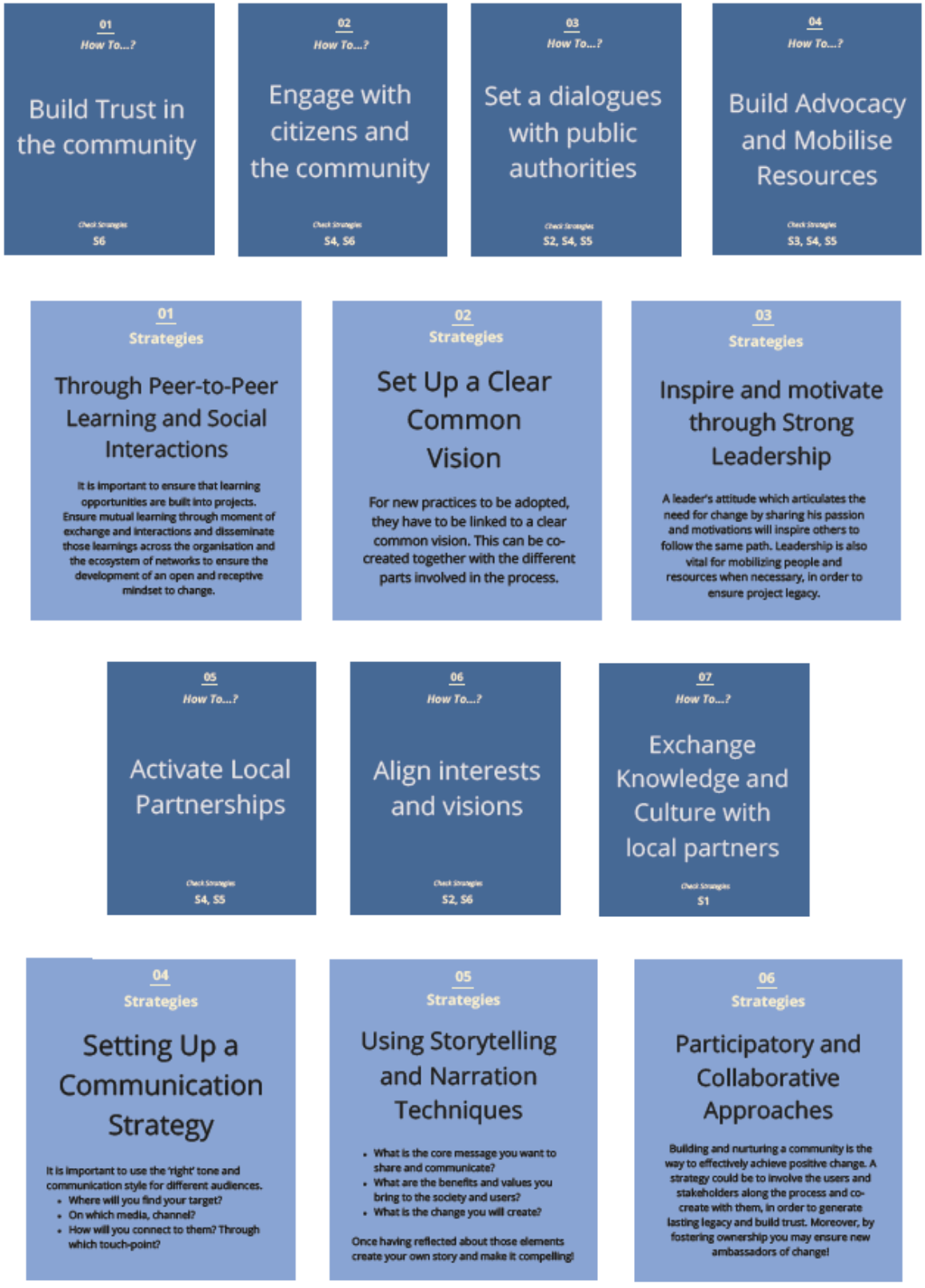

Figure 6. Resulting in 'Strategic Cards', a collaborative toolkit supporting the scaling process of bottom-up initiatives and local ecosystems.

The next section elaborates upon the scaling framework, its value for practice, and its contribution to research. We discuss how the lessons learned and insights gained could be shared across a wider audience of innovation ecosystems such as urban food systems and initiatives.

5. Discussion

The proposed scaling framework brings together a variety of existing knowledge and theories, e.g., the Spiral Model of Knowledge Creation developed by Nonaka [34], theories of transformative capacity [35], as well as theories of design thinking [36]. Moreover, the scaling framework has been validated together with the participating pilot projects to provide a better empirical understanding of how scaling theories unfold in practice. The proposed scaling process can be seen as a learning process, where bottom-up initiatives learn *What* and *How* to scale from one context to another. The current study initially looked into one of the several scaling strategies mentioned in Section 2, 'Scaling Out', which was used as a starting point to elaborate the resulting scaling framework. This intends to function as a guideline facilitating specifically the scaling approach of bottom-up initiatives willing to replicate and implement their initiatives from one urban context to another. In other words, the framework guides a particular thinking process, where design demonstrates to be helpful and relevant to support the scaling process of local ecosystems, even beyond the implementation stage. Figure 5 shows the resulting scaling framework that supports and guides bottom-up initiatives to proceed in their scaling journey and provides them with the needed knowledge to overcome socio-cultural and contextual barriers. Figure 5 also illustrates the steps of the scaling journey as a learning process, where initiatives firstly recall previous experiences and secondly use those as a basis to better understand and formulate what is crucial to scale; they become aware of differences and similarities between the context of origin and the new context they are going to scale in. Next to that, initiatives apply the knowledge acquired to the new context and exchange or co-create new knowledge with the (new) local ecosystem of stakeholders. Indeed, mission-driven local ecosystems look back at their knowledge background and experiences to make decisions about the next steps; they proceed onto the next step and acquire new knowledge, for instance, by getting to know the local needs of the community, and going back to their initial project proposal, they re-frame it, iterate it, and so forth. Additionally, to enhance this knowledge co-creation process and exchange, we designed a toolkit in the form of 'Strategic Cards', as illustrated in Figure 6, that aims to trigger discussion and collaboration among the different involved parties, and to facilitate the overcoming of scaling challenges innovators may encounter in their process.

As stated before, scaling is a complex process; there is not just one single way to enable successful replication and implementation. Mission-driven local ecosystems face several different challenges along the path, influenced by various contextual factors; they need to find strategies to overcome the socio-cultural boundaries and bridge the knowledge gaps. The conducted co-creation sessions demonstrated that scaling is like a learning process where knowledge is exchanged throughout multiple moments of social interaction. Those moments of interactions and collaborations allow local ecosystems to learn and exchange culture and co-create knowledge in a safe and explorative way. It can be concluded that since the studied initiatives are united by similar scaling challenges, the framework can be applied independently from the type and orientation of the initiative, whether this is dealing with food or any other local innovation ecosystems willing to scale their impact to contribute to sustainability transitions. For this reason, we foresee the broader applicability of the lessons learned and insights gathered to develop synergistic paths oriented to building resilient, sustainable socio-economic systems.

5.1. Scaling the Framework and Approach Designed to Multiple Types of Initiatives

The question remains to what extent can the framework and strategy to scale impact be applied independently of the type of initiatives or eco-system addressed. In the current

section, we elaborate upon the potential transferability within the agro-food sector to other bottom-up initiatives willing to co-create local food ecosystems. Table 1 showed that despite the diversity of challenges addressed, the initiatives have a lot in common. As there were similarities across the diversity of initiatives found, it can be expected that the results and the processes followed could be applied to a wider range of initiatives dealing with other topics. For instance, initiatives dealing with food systems, such as food-sharing projects that aim to reduce food waste, or other initiatives that address sustainable food consumption within the urban system. Other examples of food systems are urban farming and community gardens that focus on community building because they have the potential of empowering local small-holder farmers by creating job opportunities. In keeping with El Bilali and colleagues, the concept of food systems goes beyond activities (e.g., production, processing, distribution, preparation, and consumption) and encompasses other constituent elements (e.g., population growth, urbanization, climate change, socio-cultural factors, globalization, politics) as well as the outputs and outcomes of food-related activities (environmental, social, economic) [37].

By comparing our insights gained with local bottom-up initiatives with Erickson's studies on food systems, we see similarities in the challenges that arise when scaling impact to achieve a sustainable future of living [2,38]. Indeed, we consider bottom-up social initiatives and food system innovations as part of local urban systems willing to contribute to sustainable change; as such, they are strictly linked to social and institutional sensitivity and adaptive capacity [39]. It is from this strict connection with the local context that we could derive most of their challenges of scaling, adapting to new contexts or changing environments, implementing their innovations, and achieving social impact. All these initiatives are part of an (urban) complex system 'characterized by strong (usually non-linear) interactions between the parts, complex feedback loops that make it difficult to distinguish cause from effect, and significant time and space lags, discontinuities, thresholds, and limits' [40] (p. 545). Therefore, they depend and rely on the local and 'nested attributes of a resource system and the resource units generated by that system that jointly affect the incentives of users within a set of rules crafted by local, distal, or nested governance systems to affect interactions and outcomes over time' [41] (p. 6). According to Erickson, to overcome such challenges and achieve societal goals, we need to develop and adopt a cutting-edge innovative approach or framework that integrates the socio-economic dimension and that considers the interaction with a network of actors and stakeholders playing a part in the urban context [2,38].

Elaborating on the work of Baldy and Kruse and Erickson, it shows the value of transferring the insights and knowledge gained throughout the research to a variety of innovation ecosystems, including food systems, willing to scale their impact across socio-cultural contexts [38,42]. Therefore, the current findings regarding 'how knowledge and lessons learned in one context could be transferred to another one' enable the co-creation of sustainable systems and propose cutting-edge innovation perspectives to ignite the co-creation and scaling of local ecosystems. In particular, we share insights and key learnings uncovered regarding the values of using design tools and approaches (such as storytelling, metaphors, co-creation sessions, mapping activities, and generative exercises) to initiate knowledge exchange and as a meaningful contextual learning approach. As said before, in order to scale, and thus achieve a larger impact and systemic change, it is fundamental to diffuse knowledge and capacity among citizens and community as well as a culture of collaboration and an open mindset. In this way, mission-driven innovators are challenged by a knowledge gap that they need to bridge when scaling. This means replicating a learning process and co-creating knowledge through collaborations; as such, scaling is a very complex topic. First of all, it needs to be recognized that knowledge, especially when 'tacit' is difficult to share and disseminate among multiple citizens and even more across contexts: everyone has a different way of learning ('everyone cooks but in a different way'). This means that there is not one single solution or way of scaling. In the next section, we further discuss scaling as a cooking process to foster knowledge exchange.

5.2. Scaling as a Cooking Process: Scaling-Out or Knowledge Transfer?

To put it simply, we can use a metaphor and compare scaling with the cooking process: everyone can cook, but everyone will cook differently, and every time in a different way. It is like trying to transfer the traditional recipe of Italian pizza to a completely different country—the ingredients available or the tastes and preferences of the local community might be different. In fact, bottom-up initiatives are deeply rooted in a complex ecosystem of interrelated factors that influence the overall result and process. It is not only about deciding which ingredients to replicate. What matters most is how these are mixed and 'cooked' together, how knowledge and experience are exchanged between the citizens involved, and their collaboration, process, and strategies adopted to get the result wanted (see the quotes exemplified in Table 3).

Scaling is not an individual task but rather a collaborative process of knowledge exchange. Mutual learning processes allow activists and innovators to achieve social impact and initiate transformative system processes. Diffusing knowledge and learning practices across contexts is not straightforward. Therefore, in the following sections, we argue for the value of design approaches and methods to foster a culture of innovation and collaboration [11]. The use of the design elements, as employed in the 'Pizza workshop', has been particularly relevant to enable collaboration and cross-contextual knowledge creation. The metaphors and visual narratives revealed to be a tangible way and call to action for a variety of citizens from different backgrounds to co-create, learn, and exchange knowledge. It can be concluded that design offers powerful facilitation approaches empowering mission-driven innovation ecosystems to scale from one urban context to another.

5.3. The Value of Design Tools to Co-Create Knowledge

The use of metaphors, storytelling, and narrative techniques during co-creation sessions has proven to be effective in (a) creating social engagement, (b) building empathy with the participants, (c) creating an inclusive environment, and (d) facilitating (remote) communication and interaction. Other research also elaborates on the effectiveness of the above-mentioned design methods and approaches as communication tools and powerful ways to connect and engage with citizens [31,43,44]. Moreover, metaphors can act as useful tools to understand and make sense of what is 'fuzzy' or unfamiliar [45]. They help make things visible and have the power to ease collaboration [31,43,44]. In scaling social innovation, innovation ecosystems have to meet the new local needs, interact and collaborate with unknown stakeholders, and probably acquire new knowledge and capacity; storytelling techniques and co-creation seem to be promising design elements in the scaling phase to engage with those bottom-up initiatives and learn from their practices. Hence, co-creation approaches and design tools could be helpful to facilitate innovators replicating into an unfamiliar context and sharing knowledge with multiple communities. Next to facilitating and understanding, metaphors and the use of analogies help the communication between different citizens who come from different cultural backgrounds and have different perspectives or ways of thinking, especially when referring to complex or abstract concepts. In the current approach, the use of metaphors proved not only helpful in dealing with abstractness and underlying concepts such as knowledge and culture, but using metaphors and analogies also provided prompts to express things that are otherwise hard to describe, enabling participants to express themselves clearly. They foster engagement and make communication easier because they create a safe and playful environment.

> Since it was fun and playful, I did not feel it was 1.30h of the workshop. Compared to others where in the end, you lose engagement and get easily distracted (especially in remote).
>
> [Giulia, Project Lead and Replicator in Sicily of Ticket to Change]

Especially online where attention span is reduced and (social) distance enhanced, metaphors revealed being able to generate a more intimate interaction between the citizens

involved. In fact, participants felt at ease to express mutual appreciation and engage in open discussions at a deeper level.

> 'It was cool to have this type of workshop that is functional to the project, but at the same time, it gives us the chance to understand other more personal parts of ourselves.'
>
> [Hanna, Designer and replicator of Ticket to Change in Sicily]

Moreover, the 'fun and light' setup created during the creative sessions prompted the initiatives to look at their challenges from a different perspective and eventually find new strategies to tackle them. Indeed, metaphors empower users to translate challenges into something tangible. Using such playful tools allowed the participants to perceive their challenges and problems more lightly, opening up the perspective that nothing is impossible. The 'light' perspective and playful attitude enable innovators and citizens to openly collaborate and co-reflect, generating new insights and awareness. Therefore, those design elements empowered the innovators to gain more control over their decision-making process and proceed with confidence in their scaling journey.

> Having these metaphors with food made us think about this problem, the challenges of the project from a different perspective. That is a bit lighter.
>
> [Hanna, Designer and replicator of Ticket to Change in Sicily]
>
> 'It makes challenges more approachable and feels at ease when talking about complex topics.'
>
> [Giulia, Project Lead and Replicator in Sicily of Ticket to Change]

Although the use of metaphors and other design elements proved to be successful on one side, it is not always that easy and simple. Some limitations also need to be considered for other initiatives willing to adopt such an approach when scaling across contexts.

5.4. Study Limitations and Future Research

Due to the complexity of the scaling concept and the elaborate social-cultural dimensions, special attention needs to be put into the way the presented techniques are used to prevent generating more confusion among participants. In fact, it needs to be acknowledged that metaphors can be interpreted differently, especially when participants come from different cultures. We discovered that combining the 'metaphorical narrative' with tangible visual elements such as images works well, as well as choosing types of metaphors that everyone can easily relate to. For instance, food is known in most cultures as a moment of conviviality and sharing. It is true, as it is said, that 'you cannot truly understand a culture if you don't taste its food'. It is common to see how often citizens use the concept of food as a metaphorical reference for different purposes. Food is something that unites citizens; it is known to be, in most countries, a cultural heritage bringing citizens together to share knowledge and experiences. Food has played a crucial role, from ancestral traditions until now. This is made explicit and evident through tangible cultural heritages such as religious manuscripts or art pieces. For instance, as pictured in the 'Last Supper' by Giotto, people gather around the table to have intimate and meaningful discussions while sharing food, while other religious scripts narrate how food is the 'nutriment of our souls'. Therefore, those heritages are evidence of the meaningful and universal relevance of the concept of food in our life. With those 'gatherings around the table', we refer to moments of exchange, where knowledge is co-created and lessons are learned and diffused, in a tacit and implicit way. It might be that food acts as a deep connector at the social level because when eating most of our senses are activated (vision, taste, smell, touch, hearing) and synergetic connections are created at a psychological level.

In keeping with Connelly and Beckie, we agree that social infrastructure plays a critical role in addressing the dilemma of scale. Strengthening social relations, trust, and collaboration through those moments of exchange can give rise to social innovations that

can aid in 'addressing the challenges of scale, scope, infrastructure, and organizational capacity common in alternative food networks' [46] (p. 334).

We also acknowledge some limitations of the current study. Whereas a hundred mission-driven innovation projects were part of the Designscapes capacity program, a limited number of projects actively participated in the current study. Last but not least, as repeated over and over in the current manuscript: scaling is not a straightforward process. Therefore, the proposed scaling framework is not meant as a single solution that fits all, but rather as a helpful scaffolding approach that fits a broader palette of scaling dimensions and directions for systemic scaling [47]. Further research is needed to explore whether scaling tools such as the introduced strategic cards are helpful in different scenarios to overcome challenges to scale and contribute to resilient socio-economic systems.

6. Conclusions

The current work searched for cross-contextual approaches to share lessons learned from one context to another, enabling cross-cultural replication of locally embedded mission-driven innovation ecosystems. Intertwining theoretical and empirical research and benefiting from multiple design elements, we gained insight into scaling processes and challenges of a variety of locally embedded ecosystems. Our gained insights have informed the development of a scaling process map, which we used to structure a creative workshop to dive deeper into understanding culture and knowledge exchange when bottom-up initiatives scale their practice to new contexts. The use of food as a conceptual and metaphorical framework in the 'Pizza workshop' allowed us to deal with complexity while facilitating co-creation and knowledge exchange among the initiatives and local ecosystems. Design elements, such as the use of visual metaphors and storytelling, were revealed to be helpful when dealing with complex concepts and diverse perspectives in cross-contextual scenarios, allowing for an inclusive and participatory co-creation of knowledge. We aim to contribute a cutting-edge and innovative approach to the current public debate that often does not address the versatile cultural routines and the distinctive values linked with communities of different contexts. The current work intended to expand the reach regarding the inclusion of the concept of culture when solving wicked challenges. In other words, the current work brings up a new perspective on how food could be used to ignite transformative learning processes.

In conclusion, co-creation activities that leverage the value of design methods and tools and which involve multiple stakeholders could act as an effective catalyst for cross-contextual learning and knowledge exchange. This is particularly important for scaling and overcoming challenges because, as we said, knowledge exchange is one essential element enabling the capacity to scale such local bottom-up initiatives. It supports the learning process by creating that specific safe space which allows for experimentation and open collaboration, both fundamental characteristics necessary to ignite transformative processes of any kind [11,48]. The metaphorical storytelling of 'scaling as a cooking process' enabled mission-driven locally embedded innovations to exchange and co-create knowledge, building confidence and the needed capacity to develop scaling strategies and overcome challenges related to the implementation of their practice in another context. These insights gained on value creation processes seem to be key to further building synergistic paths oriented to building resilient sustainable ecosystems.

Author Contributions: C.M. initiated the research and the writing of the manuscript. C.M. facilitated all sessions and collected and analyzed the data. I.M. supervised all research stages, provided guidance, and co-edited the manuscript. All authors have read and agreed to the published version of the manuscript.

Funding: This research was partly funded by H2020, grant number 763784 and The APC was funded by Delft University of Technology.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Acknowledgments: The current work is part of the DESIGNSCAPES programme (Building Capacity for Design enabled Innovation in Urban Environments). The authors gratefully acknowledge the support of all Designscapes consortium partners and participants in Designscapes capability program and the resources from the Participatory City Making Lab. We would also like to thank the participants involved in our research for their time and openness during the interviews and design activities carried. Moreover, we would like to thank the reviewers for their constructive feedback.

Conflicts of Interest: The authors declare no conflict of interest.

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