

The agro-food system in the city of Valencia, Spain. Assessment of the transformative capacity towards sustainability

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Abstract

The urban unsustainability problems are complex and persistent, generating new areas of research, such as studies on transition, that aim at influencing and accelerating the processes of change towards sustainability. In the agro-food system of Valencia, citizens have also reacted to the failure of current system by challenging it with creative initiatives, self-organization, resistance and a growing demands for changes that is having a strong influence on food policies in the last years. As of 2015, Valencia has developed a transformation process in food policies through a transdisciplinary effort which has resulted in producing the Valencia 2025 Agro-food Policy Strategy, which includes strategic lines such as the agro-ecological transition and local food governance. The purpose of this paper is to inquire into the potentialities of the urban transformative capacity framework, based on the work Wolfram (2016) and develops from it, an exploratory analysis in the agro-food system of the city of Valencia in Spain with the ultimate goal of supporting their transition process. The study is based on an interpretative research paradigm in which qualitative methods are combined, that include semi-structured interviews and analysis of secondary data. The results show as assets that bring the Valencia territory, a balanced leadership amongst public institutions, civil society/social activism and private sector (transformative leadership), along with increasing disruptive initiatives, within which there are various governance spaces and a balanced human agency work at different levels. The main weaknesses identified are the integration and coupling of innovation with policies, the coordination of a vision of sustainability in the elaboration of local policies as well as spatial level planning and the learning and social reflection in governance spaces, as factors to be strengthened to allow the advance of transformation processes in the specific context of Valencia. In applying the framework of urban transformative capacity to the socio-technical agri-food system, it is essential to recognize the interdependence with the rural world and its key role in sustainability, which implies to broaden the horizon beyond the agency of urban actors and position ourselves from a territorial perspective. From our perspective, this transformative capacity framework has an important potential in terms of enabling social learning and reflexivity amongst key system actors; and academia has the responsibility and the challenge of contributing to these processes.

.Keywords: Sustainability transition, Agro-food system, Urban transition capacity, Multi-level perspective, Transformative capacity framework.

1. Introduction

In a global context of unsustainability, of urgent need for a paradigm shift, the way to move towards a new and better social order is diffuse. According to Avelino (2018), the illusion of impotence is a greater impediment to change than the power of vested interests. The global agro-food system contributes significantly to climate

change, which is the most serious of the environmental challenges that humanity has to face. According to FAO (2015; CIPF, 2014), it is estimated that 27% of the total greenhouse gas emissions can be directly attributed to agricultural, livestock, forestry and agrochemicals production. However, there is a need to clarify and add to the emissions of the sector the transformation, processing and packaging of food, its conservation-cooling, transport, commercialization and the food waste, that according to an compilation with these data Grain (2011), determine that the agro-food sector produces at least 44% of the greenhouse gas emissions. The growing size of megacities and the rate of growth of the global economy of urbanization are further aggravating the pressure on food, by 2050, more than two thirds of the world's population are projected to live in cities (UN, 2014).

Cities, therefore, are at the heart of this process and of the conflict, and present important structural problems that make them particularly vulnerable, since they are absolutely dependent on the outside areas when it comes to material goods (food, water, energy and materials), generate enormous quantities of waste and constitute the bulk of greenhouse gas emissions. They are also vulnerable territories at a human level, since hegemonic urbanism is aimed at accumulating capital and maintaining dreams of growth and economic dynamism (Herrero, 2018). The role of cities is crucial in promoting a transition to a more sustainable economy and equitable food systems. This is illustrated by the adherence of more than 187 cities to Milan's Urban Food Policy Pact, among which is the city of Valencia, while publicly declaring and claiming their role in strengthening urban and regional food systems (Renting, 2017; FAO, 2019a). However, the sustainable development is interdependent on the development of the rural world, its people and societies, its livelihoods and economy, and, no doubt, on the ecosystems and natural resources present there (Trivelli y Berdegué, 2019). The Director of FAO says that urban development can no longer be dealt with separately from rural development, the two processes should be mutually reinforcing, rather than treated as separate processes (FAO, 2019b). Also, agro-food forms a system that links politics, technologies-knowledge, cultures-societies, economy, infrastructure and the environment. All of this makes the socio-technical system of agro-food a particularly relevant case in terms of territorial transformations.

The complexity of the agro-food system and its persistent problems are a premise of the theoretical approach of transition studies, in which this research is framed. The purpose of transition studies is to find ways to promote and accelerate processes of urban transformation towards sustainability. This theoretical framework focus on socio-technical systems (Geels, 2004) and the multilevel perspective (MLP) which explains that change processes take place at multiple levels such as niche (micro-level), regime (meso-level), landscape (macro-level) and between levels while recognizing the important role of actors' agency (Frantzeskaki et al., 2018) and the need for reflexive governance. According to Rotmans et al. (2001) sustainability transitions are assumed to be a set of connected changes which reinforce each other but take place in different areas through multiple causality and co-evolution. Wolfram (2016) develops a holistic and integrated framework identifies 10 key components and a range of factors that describe the forms of agency and interaction, development processes and relational dimensions involved in building up urban transformative capacity, emphasizing the vital role of place and scale. This framework establishes a baseline and direction for "urban transformative capacity" growth, that Wolfram defines as: "the collective capacity of the actors involved in urban development to conceive, prepare, initiate and carry out changes deviated towards sustainability within and through multiple complex systems that constitute the cities with which they are related". This document analyses the extent to which the agro-food system the city of Valencia is currently able to face the great challenge of the transition to sustainability of the agro-food

system. The structure of this article considers a description of the research methodology, which is purely qualitative, including the explanation of the 10 components of the "urban transformative capacity framework". A description of the results will be presented, first through foodscape, followed by a presentation of the local context of Valencia and an exploration of the transition capacity of the Valencia agro-food system, . A discussion will be developed around the assesment of the findings obtained and the application of the framework as an assessment and support tool for the transition agro-food system in Valencia. Finally, it concludes by presenting the main findings together with possible practical implications.

2. Methods

The vision that orients this research is based on the paradigm of interpretivism (Corbetta, 2007), which through an inductive-deductive logic will gather the visions of key and representative informants of the diverse interested parts of the socio-technical system, to be approached to the agro-food reality and the capacity of transformation to the sustainability of the city in study. Research methods included semi-structured interviews, as well as secondary data analysis of policy, strategy and planning documents and relevant research articles. Furthermore, a space for interdisciplinary co-production of knowledge was also created in the form of a seminar, in which researchers and practitioners were invited to reflect together on the meaning, the logic and the potential of the research in the city of Valencia. The overall conceptual framework was discussed, and the relevance of several specific components was revealed.

Primary data was gathered through semi-structured interviews with 8 stakeholders that were selected according to their knowledge and experience in the field of agro-food transition initiatives (Tabla 1).

Table 1: List of stakeholders selected for personal interviews

ID	Affiliation	Stakeholder group
V1	Plataforma para la Soberanía Alimentaria del Pais Valencia	Civil Society
V2	Coordinadora Campesina del Pais Valencia - COAG	Civil Society
V3	Universitat Politècnica de València	Academic
V4	Universitat Politècnica de València	Academic
V5	Agriculture Service. Valencia Municipality	Local Government
V6	Justicia Alimentaria	ONG
V7	CERAI	ONG
V8	CUINATUR	Private sector

The interviews were carried out between March and July 2019 through a coverage of critical stakeholder types: local government, civil society and non-governmental organizations (NGO), academia and private sector initiatives. Each interview was recorded and had a variable duration between around one and two hours. The interviews were semi-structured with a guideline that originally followed the 10 components of the urban transformative capacity framework and its 18 subcomponents defined by Wolfram (2016 and 2019), which are explained in Table 2. However, while progressing with the interviews, the guidelines were refined and some of the components were grouped and addressed together in order to improve meaningfulness for the interviewees. It is remarkable that, although all the interviewees are experts in the fields, we found some difficulties in making

ourselves understood in relation to some specific components. This may be a consequence of the distance amongst the theoretical concepts of the framework and their practical implementation in Valencia. Consequently, the research team had to make an important effort to translate and contextualize the ideas so that they could be better understood the interviewees.

In addition, interviewees were also asked to assess the ten components of the framework on a Likert's scale from 1 to 5. The interviewees' assessment scores were aggregated in order to display the stakeholders' overall vision and contrast it with the research team judgments based on the overall analysis of both primary and secondary data. Complementary primary data was also collected through the attendance to a total of 10 local events, workshops and meetings on the topic of agro-food, innovation and sustainability transitions, organized either by academia, private sector or civil society.

Table 2. *Urban Transformative Capacity Operational Framework: key components and 18 sub-components.*
 Source: Wolfram (2016).

COMPONENTS	DEFINITION	SUB-COMPONENTS
C1 Inclusive and multiform urban governance	Diversified, flexible and robust governance structures with a wide participation and active inclusion of stakeholders from all sectors in a diversity of governance modes and actor networks with sustained and effective intermediary organizations and individuals between sectors and domains.	C1.1 Participation and inclusiveness C1.2 Diverse governance modes and network forms C1.3 Sustained intermediaries and hybridization
C2 Transformative leadership	Polycentric and socially embedded leadership arising not only from political elites, but also from other spheres of society. A kind of leadership that enhances the role of different change agents and includes the translation between discourses (across sectors, domains, scales) and the articulation of new visions and discourses to leverage collective energies and enable social learning.	
C3 Empowered and autonomous communities of practice	Communities of practices built on the shared experience of urban place and/or joint concerns. They require association, coalition forming, access to resources and conditions of autonomy.	C3.1 Addressing social needs and motives C3.2 Community empowerment and autonomy
C4 System(s) awareness and memory	Awareness and understanding among stakeholders of the system dynamics, path dependencies and obduracies that undermine urban sustainability.	C4.1 Baseline analysis and system(s) awareness C4.2 Recognition of path dependencies
C5 Urban sustainability foresight	A collective vision of radical departure from the current path should be created, including alternative scenarios based on system thinking. Transformational knowledge must be developed through transdisciplinary co-production.	C5.1 Diversity and transdisciplinary co-production of knowledge C5.2 Collective vision for radical sustainability changes C5.3 Alternative scenarios and

		future pathways
C6 Diverse community-based experimentation with disruptive solutions	Practical experimentation of path-deviant initiatives in the urban setting is crucial to develop transformative knowledge and social learning.	
C7 Innovation embedding and coupling	The extent to which barriers for innovation practices are removed and its embeddedness into routines, organizations, plans and legal frameworks is enhanced.	C7.1 Access to resources for capacity development C7.2 Planning and mainstreaming transformative action C7.3 Reflexive and supportive regulatory frameworks
C8 Reflexivity and social learning	Reflexivity and learning must include all actors of change to enable positive feedback loops. This involves the application of reflective assessment methods, the creation of formal and informal reflexivity formats that critically question progresses and to systematically manage transformational knowledge.	
C9 Working across human agency levels	Capacity development needs to occur at different agency levels simultaneously, addressing individuals, households, groups, organizations, networks as well as society at large.	
C10 Working across political-administrative levels and geographical scales	Cross-scale and multi-level implications should be incorporated in the understanding of all the components of the framework. Interactions amongst scales and administrative boundaries must be considered.	

C1–C3 refer to agency and interaction forms, C4–C8 identify core development processes, and C9–C10 represent relational dimensions that affect all other components. The interdependence between components implies that balanced attention needs to be paid to all of them — a focus on selected components or uneven support, however, is likely to undermine transformative capacity (cf. Fowler y Ubels, 2010, 19; Wolfram, 2016).

The multi-phase model of the transition studies to urban sustainability will also be used to describe the transition phase of Valencia. Following Frantzeskaki *et al.* (2018), the multi-phase framework of transitions is rooted in the hypothesis that “the dynamics of transitions in time can be described as altering phases of relatively fast and slow dynamics, which together form a strongly non-linear pattern where there is a shift from one dynamic state of equilibrium to the other” (cf. Rotmans 2005:23). van der Brugge and Rotmans (2007) have described a four-phase framework of transitions: Predevelopment phase, Take-off phase, Acceleration phase and Stabilization phase (Frantzaskaki *et al.*, 2018).

3. Results and Discussion

3.1 Foodscape and transition

The landscape that characterizes the agro-food system, considering the systematic review by El Bilai (2019) with the Multi-level Perspective, include globalization and internationalization of agro-food markets, neo-liberalization, prone to instability and trade speculation regarding economics, oil and environmental crises. Other characteristics of the landscape are population growth, social inequality and changes in eating habits and lifestyles (Immik *et al.* 2013; Hassink *et al.* 2018; Konefal, 2015; Fernandez *et al.* 2018; Belmin *et al.* 2018), all these related to “triple burden” of malnutrition that is, undernourishment, micronutrient deficiencies, and overweight and obesity (FAO, 2018), which are the effects of the current hegemonic development model. Other

serious and evident consequences of this model are environmental deterioration and climate change. All this have promoted macro-policies with sustainable development goals (SDGs 17), providing guidelines through international treaties and conventions (Zwartkruis et al., 2018; Li et al., 2013), lately with tendencies to involve the urban, as place where the regulation of food systems is established and consumption is concentrated, in an effort to integrate food in urban planning (Cabannes and Marocchino, 2018). In the context of the European Union, the Common Agricultural Policy (Levidow, 2014; Feyereisen et al., 2017) also establishes measures to improve animal welfare and protect the environment (Hassink et al., 2018). The macro-political evolution and new global standards are all part of the landscape developments that can exert pressure on the current sector (Immik et al., 2013; El Bailai, 2019).

In this complex scenario a wide variety of sustainable agricultural approaches coexist that can help overcome challenges, such as agroecology, permaculture, biodynamic agriculture, organic agriculture, agroforestry, climate-smart agriculture and conservation agriculture, among others holistic approaches conserved in indigenous cultures. However, two practices and visions stand out: organic and agroecological agriculture (both understood as ecological). The organic agriculture, maintains productivity by largely avoiding or excluding synthetic fertilizers and pesticides, without ensuring the equilibrium of the environmental or social ecosystem. Mainly because they can maintain monocultures dependent on external inputs, substituting synthetic fertilizers for other biological alternatives that have become commodities, conserving marketing channels with high energy expenditure, generating loss of added value and autonomy of farmers (Gonzalez, 2011; Altieri and Nicholls, 2013). They also depend on costly ecological certification or fair-trade seals, systems intended only for agro-export, offering little for small farmers, who in turn become dependent on external inputs and volatile foreign markets. Nevertheless, organic agriculture has another initial version based on the principles of biodiversity, recycling, economy of resources and soil-plant-animal unit, which is complemented by agroecological technical bases (Infante, 2011), where the impact is more disruptive for the current model. Organic farming systems managed with monocultures dependent on external biological and/or botanical inputs are not based on agroecological principles (Altieri and Nicholls, 2013). The second productive system that stands out as an alternative is agroecology which starts from a holistic vision, which incorporates ideas about a more environmentally and socially sensitive approach to agriculture; focused not only on production but also on the ecological sustainability of the production system (Altieri, 1999). According to Levidow (2014), agroecology has three practical forms, that of a scientific discipline, an agricultural practice, and a social movement. Their integration has provided a collective-action mode for contesting the dominant agro-food regime and creating alternatives, especially through a linkage with food sovereignty.

3.2 Key elements of the agro-food socio-technical system in Valencia

As stated in the Dobris Report, commissioned by the European Environment Agency in 1995, the city of Valencia, has one of the 6 last remaining Mediterranean Huerta in Europe (Romero and Melo, 2015; Stanners and Bourdeau, 1995), a fishing system with a coastal city, marshland and traditional peri-urban *huerta*, which fragments when entering the city, along with a complex traditional irrigation system. These unique characteristics provide Valencia with a traditional cultural-historical landscape and identity for which Valencia has applied to FAO to become a Globally Important Agricultural Heritage Systems site. However, the dynamic

relationship among urban and rural areas, and among the natural, cultural, political and economic elements of the territory, exposed the *huerta* to a chaotic and massive expansion of residential urbanism, the scattered location of industrial activities and services, and the speculation of soil and environmental degradation (Romero and Melo, 2015). All this has caused deterioration of landscapes, abandonment of land, intensive farming - forestry, and the increase of poverty (Melo, 2018). With the aim of protecting agricultural lands and their cultural value, the collective *Per l'Horta* was established in 2001, promoting the first popular legislative initiative encouraged by citizen groups in Valencia. A decade later, demanding a more participatory democracy, the citizens' national movement called "los indignados" (15 M) had its effects in Valencia in 2015, contributing to a change in government and political will (Fernandez et al., 2018). This opened a door to listen, on the one hand, to the demands of the long-term social movements on defence of the agricultural lands and food sovereignty and, on the other, to the new guidelines of the agro-food macro-policy of Europe and the UN aimed at a paradigm change towards sustainability.

Due to this political scenario change for the city of Valencia, in September of 2015 the local Council of Agriculture, Huerta and Towns (CAHT) was created within the municipality defining a Comprehensive Action Plan for the Promotion of Agricultural Activity (PAIPATA). One month later, the municipality signed the Milan Urban Food Policy Pact, binding specific actions for sustainable food systems, such as the creation of governance spaces. This treaty started a transformation process in food policies through a participative transdisciplinary effort which has resulted in the Municipal Food Council and the "Valencia 2025" Agro-food Strategy with guidelines on agroecological transition, local food economy, responsible food culture, local food governance, right to food and territorial food planning. In pursuing these efforts, Valencia was recognized by FAO as a World Food Capital and has joined the Cities for Agroecology Network (2017). In 2018, it signed the Intervegas Pact, for food sovereignty, environmental education and sustainable development (García and Moragues, 2018; Valencia 2025 Agro-food Strategy, 2018). Finally, in July 2019, the World Centre for Sustainable Food (Cemas) of the Food and Agriculture Organization of the United Nations (FAO) is installed and inaugurated in Valencia.

Parallel to the process of building governance, the institution through the new Council of Agriculture (CAHT) of Valencia and ESPAI collective (Space for Agroecological Incidence/informal governance space and catalyst group) supported the *Per l'Horta* collective, to manage a popular legislative initiative for the protection of the *huerta*, reactivation of farming and promotion of a local food system, this law was blocked for almost 20 years and with the change of government or removal of the ideological barrier the law was passed in a period of two years, including most of the claims by social movements. This is the first sectorial plan for *huerta*— established by supra-municipal vocation- a plan of integration and coordination among different local and autonomous entities that have the ability to produce an effect on the territory, as well as mechanisms to involve interested citizens and collective groups (Melo, 2016). In November 2018 the Huerta Spatial Plan (PATH) was approved, which already has received funding and is waiting for the formal institutionalization of the Horta Council, a consortium of City Councils, Generalitat, Deputation and civil society.

3.3 Assessing the transformative capacity and discussion

In order to obtain and confirm the following findings, the information was contrasted and triangulated between the various stakeholders (NGOs, local government, social movements, private enterprise and academia) and the different qualitative techniques used such as semi-structured interviews, documentary review and attendance at events organised by the different actors of the system, including an interdisciplinary seminar created to deal with this research topic.

In the micro-level or the niches (C3-C6), according to one of the institution's interviewees, are diverse communities of practice that address the social needs of a small group of people who are aware of agroecology and food sovereignty. Autonomous and empowered communities of practice are identified, highlighting the Participatory System of Agroecological Guarantee for producers and the Platform for Food Sovereignty of the Country Valencià, an informal social movement that brings together productive, consumer, organizational and collective initiatives working for Food Sovereignty in Valencia, with the objective of generating a broad social mobilization towards Food Sovereignty, through a process of strengthening and articulating the different actor experiences. From the municipality, through the local Council of Agriculture (CAHT), there are three pilot projects underway, on the revitalization of communities from the perspective of the agro-food system, with the idea of accompanying a process of agro-ecological transition. According to the interviews with the private sector and academia, there are also practice groups which depend on projects with a limited duration, related to school canteens and awareness on responsible consumption, managed mostly by NGOs. There is a lack of more active and continuous support for the development of autonomous communities of practice that address diverse social needs of the agro-food system.

Half of those interviewees agree that there is a high diversity of disruptive agro-food initiatives in Valencia, which has been increasing in recent years and one interviewee assessed this component as being weak, from the perspective of the private enterprise. Three interviews highlighted the leap in scale from consumer groups to cooperative supermarkets, with 6 experiences of this type in Valencia, their political objectives are to guarantee the sale of sustainable products and the transformation of the food model. They also highlight the rescue, enhancement and extension of sale spaces for small producers in municipal markets and the creation of two agro-ecological markets, which are intended to multiply, since the ordinance that forbidden them was recently modified. These markets are important, says an interviewee, since they bring the producer closer to the consumer and involve him in the production process. ESPAI (Space of Agroecological Incidence) made up of academics, government institution and non-governmental institutions, whose objective is to politically influence an agroecological transition towards food sovereignty and is also part of the Platform for Food Sovereignty and their speeches and lines of work have been nourished with the debates of the social bases. ESPAI is the catalyst group of the second governance space, the Municipal Food Council (CALM), which is formal, broader and more representative, since it also includes actors from private enterprise and social movements (approx. 60 participants). Through these transdisciplinary spaces of political co-production, the Valencia 2025 Agro-food Strategy is approved in 2018. These governance spaces (C1) are considered disruptive initiatives themselves. Considering the antecedents, we identify a high level of participation and inclusion, along with diverse modes of governance and forms of network.

Table 3. Synthesis of the transformative capacity of the socio-technical agro-food system of Valencia

C.1. Inclusive and multiform urban governance
High level of participation and inclusion
Diverse modes of governance and forms of network
There are intermediary organisations, but they are not very effective on a larger political and spatial scale
C.2. Transformative leadership
Strong transformative leadership, shared between social movements, the institution, academic and private enterprise.
C.3. Empowered and autonomous communities of practice
Diverse communities of practice that address the social needs of a small group of people who are aware of agroecology and food sovereignty
C.4. System(s) awareness and memory
Awareness system and memory exists in the key driver group, but does not transcend all of the stakeholders yet.
C.5. Urban sustainability foresight
A high diversity of actors is identified for knowledge co-production
There is a vision of sustainable radical changes, but they come from a minority group in the system that has management and leadership power.
C.6. Diverse community-based experimentation with disruptive solutions
High diversity of disruptive agro-food initiatives emerging in recent years, but with less development of private enterprise
C.7. Innovation embedding and coupling
There are no specific resources for promoting innovation in the agro-food sector
Agro-food Strategy as a planning instrument, innovation is also not explicit
Slow and bureaucratic processes of institutions, to adjust the normative frameworks that support integrated innovations
C.8. Reflexivity and social learning
There is informal continuous monitorization on the food transition process by ESPAI (key driver group) and on Agro-food Strategy there is an incipient process the formal monitorization across CALM. Evaluated as weak and incipient yet
C.9. Working across human agency levels
There is an advance multiple levels of human agency, with a medium level of intensity, supporting the transition
C.10. Working across political-administrative levels and geographical scales
Is valued this component as one of the weakest, since there is a clear lack of administrative and political coordination both at a horizontal level and at a vertical level

Agency and Interaction Forms (C1-C3): We found significant advances in governance and transformative leadership, both evaluated as strong components. However, there is the possibility of strengthening the governance by moving from a passive participation of the industrial food sector to an active participation, so as to fully incorporate the views and perceptions of the various food trends. The leadership present in Valencia is strong and shared among the diverse stakeholders; these fulfil hybrid roles, functioning also as intermediaries and passing from social activism to institutional roles, confirming the relational dynamics described by Wolfram (2019), which explain the forms of agency that effectively achieve institutional change, such as transformative leadership, these involve actors who occupy multiple positions, change positions, and/or develop boundary-spanning relations (Grillitsch 2017). Inversely, where all principal stakeholders fail to develop such forms of agency and interaction, urban TC and actual change remain necessarily limited (Newton et al. 2017). However,

in the role of hybrid intermediaries, they do not connect the intergovernmental gaps observed horizontally and vertically, PATH being an important but occasional success.

Core development processes (C4-C8): Most of these components are at a weak or incipient level of development (C4-C7-C8), or medium one (C5-C6) considering diversity and transdisciplinary co-production and the emerging development of experimentation with disruptive initiatives. The system of consciousness and memory (C4) and the work on alternative scenarios and future paths (C5.3), are considered weak, although there is important work in the informal governance spaces of the Platform at the level of social movements and especially in ESPAI (key driver group). However, this work is not replicated in CALM which is a more representative space. The stakeholders of the food system do not share the vision of radical changes and have different conceptions of what means is to be sustainable. The knowledge about the food system is not yet open source and is not widely shared, which makes the collective self-awareness weak, since the various actors have not been actively involved in the construction of systemic dynamics and relations. Following the components developed by Wolfram (2016), it is necessary to carry out the strategic knowledge management to enable transfers between different forms of knowledge (implicit/explicit; simple/complex; systemic/sectoral) and temporalities of knowledge (past, present, future).

The coupling of innovation (C7) was evaluated as weak; it is necessary to make explicit the support with resources and promotion of the innovation in the action plan of the Agro-food Strategy that is under construction and in other instances (CATH and the Center of Municipal Innovation Las Naves) to strengthen the disruptive initiatives, and to favour their replication. It is also necessary to take advantage of the CALM as a space of representative participation to generate networks between disruptive initiatives of different actors, institutions and resources to form systemic alternatives. An advance has been observed in the regulatory frameworks in accordance with the narrative of the new paradigm, which favour innovative and sustainable initiatives, however it is still in an incipient phase. It is necessary to allow the use of broader resources for transformative action and at the same time to discourage unsustainable practices, as well as to work on management methodologies that make bureaucratic administrative processes more flexible, in order to speed up and allow sustainable transformations. Currently, there are two regulations created in favour of sustainable food, but which lack monitoring and oversight and do not comply (V3-V6-V8). A work with a great impact in process is outlined, through the implementation of the regulation in the public purchase of sustainable food for school canteens.

Reflexivity and social learning (C8) is a transversal capacity to all components, and of emergent development in the agro-food system of Valencia. However, it is marked as weak, since it is still in an incipient stage on a larger scale, as the reflective monitoring of the Agro-food Strategy in CALM for each strategic line. In leadership spaces, if reflective monitoring is and informally carried out. As potential social learning process on a larger scale, the pilot plans for sustainable food in schools, involving students, parents, teachers and school canteens, are successful in the communities of practice and need support for their continuity, replication and autonomy. Within university's academic , the regime and different visions of agro-food sustainability (conventional, organic and agroecological) are replicated. Therefore is a need to bring together researchers and our works on to dialogue on agro-food transition and to become more involved in interdisciplinary, transdisciplinary and governance processes.

Relational dimensions (C9-C10): The information gathered here suggests that in Valencia there is a balanced development at multiple levels of the human agency, with clear examples at each level and with diverse development of capacities (C1-8) at each of them, therefore it was assessed with an average level. The connections between the different administrative and political levels (C10) and the geographical scale, it was assessed by all the interviewees as weak and very weak. The need was identified to generate a consensual vision of sustainable agro-food that transcends the different local government councils (horizontal), generating coherence in decision-making and relating to new regulations, as well as in management at the vertical political-administrative level. The approved Spatial Plan of the Huerta (PATH) which considers a new governance space through the Council of the Huerta of supra-municipal vocation, aims to contribute to the development of this capacity, however it is not yet implemented.

According to this assessment and the multi-phase model that described a four-phase framework of transitions: Predevelopment phase, Take-off phase, Acceleration phase and Stabilization phase (van der Brugge and Rotmans, 2007; Frantzaskaki et al., 2018), Valencia's agro-food system would be in the pre-development stage, since "innovations are still isolated and fragmented, poorly integrated and not sufficiently developed to compete with the existing regime" (ibid.).

Dynamics and drivers of the transition in Valencia from a multi-level perspective

Considering the basic principle of the coordinated emergency of transitional studies and the framework of the multi-level perspective, three milestones: empowered social movements, a change of local government, after 24 years of a right-wing party ruling, and the signing of the Milan Pact are identified. The signing of the Milan Pact (landscape), which involves formal and effective food governance practices and the delegation of power through participation in decision-making, is seen as the trigger for a the dynamics of rapid change. However, this challenge would not have been met if it had not been for a previous slow dynamic of change related to the development of social movements. These are born in defence of the territory by urban expansion and begin to consolidate and self-organize to tension the regime. This line of thought gave rise to other, such as: more participatory democracy, food sovereignty and agroecology from these motivations, is created leaderships and disruptive initiatives (niches) in the agro-food system. Wolfram (2019) mentions the dynamics of power and underlines that the development of the urban TC is always and necessarily political and, therefore, subject to impugnation and social struggle. After the elimination of the ideological barrier, with the change of local government, a window of opportunity was opened in the regime, for the downward flow of the landscape and the ascent of the narrative of social movements. The coordinated emergence of these three milestones, the change of government, the signing of the Milan Pact and the existence of empowered grassroots movements to take this responsibility and marked a before and after in the agro-food policy and in the conformation and development of transition capacities in the agro-food system of Valencia.

Urban transformative capacity of the socio-technical agro-food system: If it's not named, it doesn't exist

With respect to the urban focus of the theory of transition and also of the urban tendencies of agro-food macropolitics, in this socio-technical system, it seems paradoxical to perpetuate the invisibility of the rural area

and to continue considering it as a pantry which can, hopefully, be exploited in an agro-ecological way. In awareness of all that the urban sector can contribute as a center of human convergence, political, legislative power and in the planning of a more holistic and territorial development, it is important "how" to position oneself to promote deep paradigm changes and not to continue replicating patterns. Rural society, which is home to 45% of the world's population (World Bank, 2018) and has an economic system closely related to food that safeguards cultural heritage and knowledge (the basis of agroecology comes from peasant and indigenous knowledge) and an environmental context that contributes to the ecosystem equilibrium that allows life; are disruptive dynamics themselves, immersed and influenced by the hegemonic model and are key to sustainability. There is evident urbanites line of thinking in which everything is made to look towards the cities and from the cities, this is clearly observed in education and in the media, with the dream of an unsustainable lifestyle, fed by the capitalist-development model, (main reason for rural-urban migration). According to Kooiman (2005), systems only "see" what they can interpret from their point of view, including communications from outside. The dynamics of domination and concentration of power which characterize the regime are noted and according to the transition studies they have to be changed through governance. However, for this to work, it must include processes of learning and collective reflection with all actors (urban and rural) and it must be truly open to the active participation of all actors in creation and decision-making; this seems to be the most complex thing. It is important to position oneself from the outset with an inclusive and territorial perspective.

This research points to the suitability of implementing reflexive practices as a way of nurturing research but also as a way of enabling discussion, deliberation and reflection amongst the actors. This is something to be developed in the near future. In fact, our aim is to share our preliminary findings with all the different stakeholders and enable a dialog amongst them in order to collectively make sense of the notion of the agro-food system transformative capacity of Valencia and define joint strategies for its reinforcement.

4. Conclusions

Wolfram's urban transformative framework has been successfully applied to the socio-technical agro-food system of the city of Valencia, obtaining valuable results on its ability to prepare, initiate and direct transformation to sustainability. However, it is necessary the recognition of the rural area as a sector and key actor of sustainability and of the socio-technical agro-food system, namely broaden the horizon beyond the agency of urban actors and position itself from an inclusive and territorial perspective.

From the multi-level perspective in the agro-food system of Valencia, a coordinated emergency of three events associated with the relations between niche, regime and landscape has been observed that has to do with the change of the local government and the elimination of ideological barriers (regimen), opening a window of opportunity to filter the tendencies of foodscape through the signing of the Milan Pact and for the rise of the narrative of the empowered social movements (niches), related to the defence of territory, agro-food sovereignty and agroecology.

What is seen in Valencia is an incipient stage in the generation of transformative capacities, with great recent achievements and good prospects of continuing in this fluid dynamics of capacity development, at the moderate

pace that the legal frameworks and bureaucracy have allowed it. According to this assessment and the multi-phase model, Valencia's agro-food system would be in the pre-development stage, with assets such as transformative leadership, an emerging state of disruptive initiatives, within which there are spaces for effective governance as well as balanced work at the multiple levels of the human agency. Considering the orientations of Wolfram's framework for Transformative capabilities, the key challenges are the following:

Forms of Agency and Interaction: to strengthen the governance by moving from passive to active participation of the industrial and productive food sector, so as to fully incorporate the views and perceptions of various food trends. To strengthen the role of intermediaries through synergies and new networks with institution FAO's Cemas, Las Naves (municipal innovation centre with its new agro-food manager) and with the Council of Huerta under construction with a supramunicipal vocation. There is a great diversity of communities of practice, however, there is a lack of more active and continuous support, with resources to foster the strengthening of their association and their autonomy.

Core development processes: Knowledge about the food system is not yet open-source and widely shared, which makes collective consciousness weak, as the various actors have not been actively involved in the construction of systemic dynamics and relations. It is proposed to take advantage of the governance spaces to carry out strategic knowledge management in order to enable transfers between different forms of knowledge (implicit/explicit; simple/complex; systemic/sectoral) and temporalities of knowledge (past, present, future) and that territorial sustainability foresight actively involve the food industrial sector (enterprise and academy). Make explicit a plan to strengthen existing innovation favouring their support, replication, and the creation networks between disruptive initiatives of different actors, institutions and resources to form systemic alternatives (e.g. Plataform-Las Naves- CATH, CALM). Continue working on regulatory frameworks in accordance with the narrative of the new paradigm that favour sustainable initiatives and discourage unsustainable practices, as well as on management methodologies that streamline bureaucratic administrative processes for sustainable transformations and make them more flexible.

Relational dimensions: The connections between different political-administrative levels and geographical scale, were evaluated as weak. It is necessary build a consensual vision of sustainable agro-food that transcends the different local government councils, generating coherence in decision making and new related regulations, as well as in management at a political-administrative vertical level. Strengthening of the intermediaries is important in order to work on this weakness and the approved Spatial Plan of the Huerta (PATH) that considers a space of governance through the Council of the Huerta of supramunicipal vocation has as objective to contribute to the development of this capacity; however it is still not implemented, that is why a close follow-up is important.

From our perspective, the urban transformative capacity framework has an important transdisciplinary potential in terms of enabling social learning and reflexivity amongst key city actors; and academia has the responsibility and the challenge of contributing to these processes.

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