Territorial planning and urban transformative capacities. Preliminary reflections on the case of Valencia in Spain

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Abstract: The role of urban areas for sustainability transitions is crucial. Urban unsustainability problems seem to be persistent and a sense of urgency about how to speed up purposive urban transformation is growing. Accordingly, the research community is paying increasing attention to place-based approaches to identify the essential factors for accelerating urban sustainability transitions. This work-in-progress is based on Wolfram's urban transformative capacity conceptual framework (2016) for the analysis of the transition processes in the particular case of Valencia, Spain. The aim is to apply the framework as an analytical tool and to develop an exploratory assessment based on in-depth stakeholder interviews which identifies strategic implications for policy making and urban planning in order to accelerate transitions. In particular, the role of spatial planning (and planners) at metropolitan level have been examined in relation to its capacity of translating and incorporating innovative practices to accelerate urban sustainability transitions. At this level, implications in terms of rationalities, governance, instruments and techniques are shown in the conclusions. Although the research is circumscribed to the city of Valencia, its implications may be valuable for other contexts to enable comparative research.

Keywords: spatial planning; urban planning; sustainability transitions; Valencia

Introduction

Cities and territories require new forms of planning to face global sustainability challenges. Climate change is already a well-known problem. Significant impacts on human and natural systems have been related to climate change (Intergovernmental Panel on Climate Change [IPCC], 2014). Between 1990 and 2015 anthropogenic green-house gas emissions due to energy production increased by 45 % (International Energy Agency [IEA], 2018). Furthermore, cities are responsible for more than 70 % of

global carbon emissions (United Nations Human Settlements Programme [UN HABITAT], 2016). According to the United Nations, 55 % of the world's population live in urban areas (United Nations, Department of Economic and Social Affairs [UN DESA], 2018). Consequently, the role of cities for sustainability transitions is crucial. In addition, urban unsustainability problems seem to be persistent and a sense of urgency about how to speed up purposive urban transformation is growing. The academic community is paying increasing attention to place-based approaches to sustainability in order to address its spatial dimension and to identify the essential factors for accelerating sustainability transitions at urban level. Also all these challenges require territorial governance actors and institutions who deal correctly with uncertainty and complexity.

The city of Valencia seems particularly suitable to analyze urban transformation capacities through spatial planning in Spain. Valencia is the third largest city, just behind Madrid and Barcelona. The whole metropolitan area includes 1.5 million people. According to the first Dobris Assessment report (European Environment Agency [EEA], 1995), the *Valencian Huerta* is recognized as a very singular landscape in the Mediterranean region. This historical vegetable market garden, which surrounds the city, is crucial in terms of the urban transition singularities of Valencia (Figure 1 and Figure 2). The Huerta is also a cultural landscape of interaction between humans and nature throughout the centuries. The Historical Waterscape of the Huerta of Valencia is said to be one of the Globally Important Agricultural Heritage Systems (GIAHS) by The Food and Agriculture Organization of the United Nations (FAO) in 2019[1]. It has a medieval design irrigation system and it connects the three water ecosystems of the metropolitan area of Valencia: the Turia River, the Albufera Lake Natural Park and the Mediterranean Sea (Melo, 2018). However, this landscape has not been a government priority since the river flood of Valencia in 1957. After this catastrophe, urban planning was focused on urban and infrastructure development in place of the Huerta (Miralles, 2018). Furthermore, this landscape has been pressurized by recent expansions of the city. Artificial surface of the Metropolitan Area of Valencia increased by 8000 ha during the period 1984-2011 (Fernandez and Lopez, 2015). The urban sprawl was accelerated by the Spanish property boom from 1998-2008 and its consequences motivated new social movements to protect the Huerta (Palau-Salvador *et al*. 2019). In 2000, a *popular legislative initiative* collected 118,000 signatures in favour of a law and a specific spatial plan to protect the Huerta. Both were not finally approved until 2018 (Miralles, 2018). Throughout all these years until the Territorial Action Plan of Huerta de Valencia (PAT HUERTA) was approved in 2018, disruptive initiatives to protect the Huerta have emerged; and the city presents a balanced leadership among public institutions, stakeholders, civil society and private sector initiatives (Palau-Salvador *et al*. 2019).

[1] The Food and Agriculture Organization of the United Nations (FAO). Globally Important Agricultural Heritage Systems (GIAHS). Date of access: 25/10/2019. http://www.fao.org/giahs/en/

Figure 1: The Huerta of Valencia map. Source: PAT HUERTA, 2018.

Figure 2: The Huerta of Valencia image. Source: PAT HUERTA, 2018.

The purpose of this paper is to inquire into the potentialities of Wolfram's urban transformative capacity conceptual framework (Wolfram, 2016) for the analysis of the transition processes with regard to the city of Valencia in Spain. Urban planning policy field is recognized as having a key role in developing transformative capacities (Wolfram *et al*. 2019). For first time, we discuss the current transformative capacity of Valencia through the articulation of the different components of Wolfram's conceptual framework in relation to the Huerta spatial plan processes. The aim is to reflect on the methodological implications of applying the conceptual framework as an analytical tool and to develop an exploratory assessment to identify strategic implications for spatial planning and policy-making. In particular, the role of spatial planning, institutions and territorial actors has been examined in relation to its capacity to translate and incorporate innovative practices to accelerate urban sustainability transitions.

The next section describes the theoretical framework of this research and lays out Wolfram's conceptual framework. Subsequently, the methodology is described for data collection, assessment and interpretation. After that, the findings of this research are shown and discussed. Finally, highlights and main conclusions about key implications for research and policy are presented.

Theoretical framework

Sociological and institutional theory definitions emphasize transitions as radical transformations, their structural character, multiple causality and co-evolution and a shift in the dominant rules of the game. For Grin *et al*. (2010:1) transitions are a "radical transformation towards a sustainable society as a response to a number of persistent problems confronting contemporary modern societies". Rotmans *et al*. (2001:16) defined transition as "a set of connected changes which reinforce each other but take place in several different areas such as technology, the economy, institutions, behaviour, culture, ecology and belief systems. A transition can be seen as a spiral that reinforces itself; there is multiple causality and co-evolution caused by independent developments".

Transition and transformation have often been used with similar meanings because both words refer to radical and large-scale changes in complex societal systems but they have a differentiated focus and not exactly the same implications (Hölscher *et al*. 2018). In the field of urban studies, while transformation embraces both the process and the outcome of systemic change, transition would only refer to the former. In consequence, 'urban transformation' seems to be more adequate to achieve sustainable development as a normative goal and an open-ended process (Wolfram *et al*. 2016). In fact, sustainable urban transformation has been used to emphasize the structural level of transformation processes involving radical and multi-dimensional change to reorient urban development towards sustainability (McCormick *et al*. 2013). That way, sustainable urban transformation would encompass "both sustainable urban structures and environments and (radical) economic, social, cultural, organizational, governmental and physical change processes" (Ernst *et al*. 2016:2988).

At a theoretical level, different transition schools have different approaches to address this issue (Frantzeskaki *et al*. 2018): (1) Technical innovation systems focused on the emergence of new technologies and the related institutional and organizational changes. (2) Strategic niche management approaches focus on niche creation, proliferation and replication to enable transitions through strategies such as shielding, nurturing, empowering… (Hoogma *et al*. 2002). (3) A socio-technical

systems approach to explain technological transitions as the result of dynamics at three levels (niche, regime, landscape) (Rip and Kemp, 1998, Geels 2002, Geels and Schot, 2007). (4) Transition management approaches are based on governance framework to influence transitions in a more sustainable direction. Including an overall process approach and methodologies to setting the scene, envisioning, backcasting, building arenas… (Rotmans *et al*. 2001, Loorbach, 2007, Wittmayer *et al*. 2018).

On the one hand a multi-level perspective from the socio-technical systems approach (landscape, regime and niches), emphasizes the tension between emerging niches and stabilized regimes as the specific dynamic with the potential to bring about sustainable change (Geels, 2004 and 2011). From this perspective, a transition implies fundamental change of a regime's culture, structure, and practices (Loorbach, 2007) as a consequence of the tensions between the functioning of the regime and the landscape, the stress of internal mismatches in the functioning of the regime and the pressure of alternative innovative options (Frantzeskaki and De Haan, 2009). On the other hand, a multi-actor perspective (agency, networks and governance) gives importance to governance and the role of actors in sustainable urban transitions which have been receiving growing attention while recognizing its importance in influencing systemic change processes (Frantzeskaki *et al*. 2018). Following Grin *et al*. (2010), societies are made of interconnected networks of actors that interact in many ways, at different levels and within diverse social realms. In that way, Fischer and Newig (2016) explore the role of actors in transitions to sustainability and identify different ways to categorize them: as niche, regime or landscape incumbent actors, as belonging to different societal realms or governance levels; or as being intermediaries. While trying to classify them as supporting or opposing urban transition, they find that in fact "actor roles in transitions are erratic, since their roles can change over the course of time, and that actors can belong to different categories" (Fischer and Newig, 2016:1).

Despite all of this, a claim for the lack of attention to agency, power and politics has been made as subjects of contestation, conflict, power and vested interests have often been overlooked (Frantzeskaki *et al*. 2018). On one side, Gillard *et al*. (2016) claim that in order to be transformative, transition approaches have to incorporate social theories where power, politics and social relations are central to account for the institutionalized values, worldviews and discourses that are involved in social change. On the other, Avelino *et al*. (2016) develop a multi-actor perspective to understand politics in transformative change and who is involved in the decision-making process. They conceptualize the shifting power relations amongst actors with an emphasis on the empowering and disempowering processes. Recognizing the important role of governance, power and agency implies the assumption that the urban transformation processes are shaped and modulated precisely by the interactions amongst actors within the framework of societal structures. In this way, understanding actor's worldviews and strategies to influence sustainability transition and assessing who are the different actors exercising power and what are the shifting power relations amongst them becomes a crucial question.

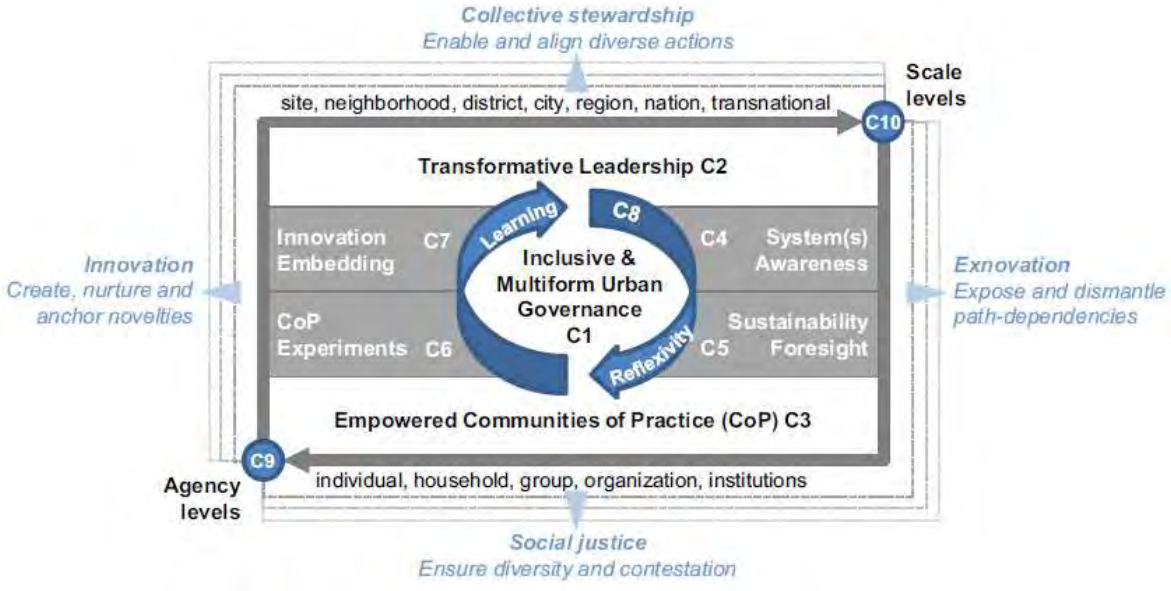
Considering all these perspectives, urban sustainability transitions are empirically and conceptually distinct from sector-specific transitions. Previous contributions on sustainability transitions have largely taken a domain-oriented approach (energy, water, food, etc.). Urban sustainability transitions involve the alignment of resources and actor constellations across domains within a given geographical setting. Therefore cities are the places and scales where the multiplicity of different dimensions concerning sustainability transitions come together, including the role of civil society

(Frantzeskaki *et al*. 2017). After that, urban planning and transition management complementarities have been highlighted (Wolfram *et al*. 2019). Furthermore, the urban planning policy field is recognized as having a key role in developing transformative capacities. In fact, Wolfram *et al*. (2019) suggest challenging and reinventing urban planning as a key arena for developing urban transformative capacities in relation to its potential cross-sector, multi-scale, multi-actor, place-based and comprehensive approach.

By inquiring into urban sustainability transition through spatial planning, this paper draws on Wolfram's holistic conception of urban transformative capacity "as the collective ability of the stakeholders involved in urban development to conceive of, prepare for, initiate and perform path-deviant change towards sustainability within and across multiple complex systems that constitute the cities they relate to" (Wolfram, 2016: 126).

As shown in Figure 3, the framework is composed of 10 interdependent components. The first three are related to agency-core analysis and interrelation forms (C1-C3). C1- 'inclusive and multiform urban governance' assess stakeholder involvement in urban planning, diversity of formal and informal interactions among territorial actors and quality of intermediaries. C2- 'transformative leadership' asks who are the individual or collective leaders in the public, civil society or private sector. And C3- 'empowered communities of practice' identifies the autonomy of the communities to achieve their needs. Five components (C4-C7) are linked to critical capacity development processes. C4- 'system awareness' checks systems analyse and path-dependencies understandings. C5- 'sustainability foresight' gives importance to participatory visioning and alternative scenario designs. Component C6- 'practical experimentation of communities' evaluates new innovative solutions. C7- 'innovation embedding' identifies access to resources and regulation flexibility for innovation. According to Wolfram (2016), C8- 'reflexivity and social learning' is a vital component required to feed outcomes of all four processes through monitoring system change and collective reflexivity. The last components show up capacity development needs occurring at different C9- 'agency levels' and C10- 'scale levels' as relational dimensions needed for change (Wolfram, 2016).

Figure 3: Components of urban transformative capacity. Source: Wolfram *et al*., 2019: 439.



Methodology

Research methodology is based on qualitative methods including semi-structured interviews and analysis of research papers, spatial planning documents and regulation. This preliminary piece of work follows successful applications of Wolfram's conceptual framework in sectoral-oriented research. It mainly takes references from urban regeneration (Wolfram, 2018) and energy governance systems (Wolfram, 2019). Primary data was collected though semi-structured interviews with 9 selected stakeholders (Table 1) who were involved in current spatial planning processes with regard to the PAT HUERTA of Valencia approval in December 2018. Complementary primary data was also gathered through local events and meeting attendance (3 in total). In order to receive first impressions of the spatial planning process, the interviews were realized between January 2019 and May 2019 through a systematic coverage and balanced representation of critical stakeholders: government agencies (regional and local), civil society and Non-governmental organizations (NGO), academia and intermediaries.

Table 1: List of stakeholders selected for personal interviews

ID	Affiliation	Stakeholder group
V1	Director. Spatial Planning Division (*Generalitat Valenciana*)	Regional government
V2	Secretary. Spatial Planning Division (*Generalitat Valenciana*)	Regional government
V3	Planning Service (Valencia-Municipality)	Local government
V4	Per l`Horta	NGO
V5	CERAI	NGO
V6	Cercle (Coop.)	Intermediary (private)
V7	The Water Tribunal of Valencia (since 960)	Intermediary (public)
V8	Urbanism department (*Universitat Politècnica de València*)	Academia
V9	Geography department (University of Valencia)	Academia

In each case the interviews were recorded and one-hour long. The questionnaire was composed by the 10 components of the urban transformative capacity framework which were already subdivided in 18 subcomponents by Wolfram (2018 and 2019):

- C1.1 actor diversity
- C1.2 inclusion support
- C1.3 intermediaries
- C2 transformative leadership
- C3.1 social needs focus
- C3.2 community empowerment
- C4.1 system analysis
- C4.2 path-dependency
- C5.1 knowledge production
- C5.2 sustainability vision
- C5.3 alternative scenarios
- C6 disruptive experimentations
- C7.1 resource availability
- C7.2 organization adjustment
- C7.3 reflexive regulation
- C8 social learning and reflexivity
- C9 working across agency levels
- C10 working across scales/tiers

In addition, interviewees were also asked to assess the 18 sub-components of the framework on a 5-level Likert scale. The interviewees' assessment scores were aggregated by subcomponents in order to display the stakeholder's overall vision.

Secondary data from spatial planning documents, research papers and the media were analysed to contextualize information from the interviews. All collected data allowed our research team to judge the 18 subcomponents and factors within a researchers' Likert-scale. Since these individual stakeholder assessments drew exclusively on their perceptions of reality, whereas the researchers' assessments show overall insight. This differential assessment between stakeholders and researchers was also useful to enrich discussion and conclusions.

Urban transformative capacities through spatial planning in Valencia

At the beginning of the 21st Century, all the research papers and media showed Valencian spatial planning as an inconsistent policy field. This tradition of comprehensive planning absence has been further developed in previous investigations (Segura-Calero, 2017). In this way, Valencian territorial developments were led by urbanization like a 'tsunami', especially in coastal areas where the residential impact of mass tourism reached its height. In particular, in the city of Valencia urban sprawl was also accelerated by the Spanish property boom, increasing soil selling on the outskirts of the city and the Huerta (Fenandez and Lopez, 2015), which also augmented not only environmental but also administration costs in the Metropolitan Area (Gielen, 2015). The lack of urban planning at metropolitan scale (45 municipalities) seems to have been persistent until the Huerta Law and the PAT HUERTA were approved in 2018. There was a 50 year-long local community claiming process to protect the Huerta of Valencia until the *popular legislative initiative* was proposed in 2000, which collected 118,000 signatures (Miralles, 2018). Now we can recognize a current political change and new community potentials towards sustainability transformation through challenging and reorienting spatial planning in Valencia.

On the word of stakeholders (from V1 to V9), the PAT HUERTA urban planning participation processes were the most resourceful, diverse, extended and inclusive that they have attended. The PAT HUERTA participation tasks were started in 2006 as a serious administrative effort to achieve knowledge through formal processes but also informal meetings (V1, V4, V5). It was recognized especially relevant in terms of diverse governance and network forms (V9). In spite of the obsolescence top-down governance system and stakeholders' interest (V3, V6, V8), those new participation experiences have been considered as having a great success. Nevertheless, there still remains a lack of confidence and cohesion among territorial actors (V6, V7).

The roles of intermediaries are always crucial in relation to governance and stakeholders' interactions in spatial planning. But usually those intermediation tasks are derived to the private sector during spatial plan's elaboration processes in Valencia (V9). Despite this, the *Huerta Council* was recognized by the PAT HUERTA and the Huerta Law, which is under constitution at the moment (V1, V2, V6). It was set up as an official intermediary and management entity that represents all the Huerta stakeholders. The expectations are great but there is only another one-year-old metropolitan entity as reference: the Transport Metropolitan Authority, which coordinates mobility issues among Valencia metropolitan actors (V1).

On the one hand a new political will was particularly essential to achieve the PAT HUERTA approval. Also this leadership was articulated by singular regional administration planners who introduced and articulated the *green infrastructure* concept and open strategic spatial planning processes in Valencia (V1, V2, V9). Furthermore, the municipality of Valencia and the mayor played an important role in favour of Huerta protection (V2, V3). On the other hand, social movement leaderships strengthened community visions towards sustainability and fed them into the local and regional arenas (V2, V4, V9). For example, there are emergent disruptive communities to protect the Huerta and its own way of life. *Per L'Horta*, who are the heirs of the *popular legislative initiative*, or *Salvem movements* are involved in every metropolitan territorial conflict of Valencia (V2, V4, V5, V9). Non-governmental environmental organizations at national level were not so relevant in these local matters (V4). Nevertheless, agro-food collectives such as CERAI in favour of Food sovereignty are emerging as communities of practice (V2, V4, V5). Farmers' associations such as *La Unió de Llauradors i Ramaders*, also contributed to spatial planning processes as stakeholders in the Huerta of Valencia. The academics' role was also relevant in terms of co-production of knowledge and highlighting the Huerta through research. The *Cátedra Tierra Ciudadana* is one important institution from the *Universitat Politècnica de València*, where the Historical Waterscape of the Huerta-GIAHS proposal emerged. It is a space for research, critical reflection, exchange, training and dissemination around the agronomic and social sciences (V9). However, there is a general lack of critical resources and broad mass of people to achieve all those communities' aims (V6, V8).

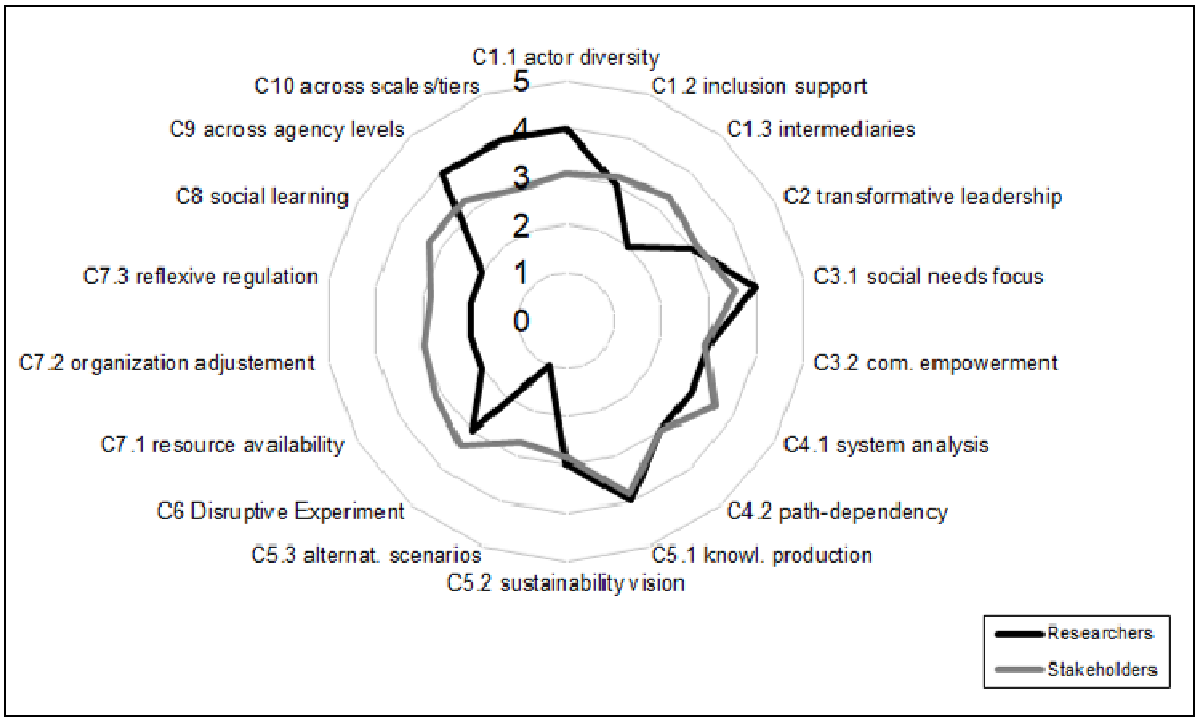
As indicated by all stakeholders there is not shared vision but a partial one which provides orientation. Also they recognize that alternative scenarios and future pathways are not correctly developed in the PAT Huerta (V1, V2, V4, V8). Furthermore, there are not clear and shared baselines indicating the way to go in terms of sustainability. In absence of administration systematic awareness, there is an important know-how in managing conflicts (V1, V2). The main conflicts in the Huerta have been related to property rights and the dilemma *production vs. protection*. Meanwhile, there are informal dedicated analyses of governance structures and systemic relations in the Huerta by different collectives. In this way, the co-production of knowledge reaches its height in the Huerta and especially in the diagnosis of the PAT HUERTA (V4, V5, V8, V9). Although unsystematically, stakeholders are able to recognize institutional path-dependencies, barriers and drivers for change. Meanwhile, innovation practices to solve these barriers are possible but the comprehensive character of spatial planning implies complex sectoral regulation and coordination issues. Non-governmental stakeholders consider the regulation flexible but institutional administrative structures are still slow to support innovative practices towards sustainability.

In general, there are an absence of accountability practices and monitoring tasks. According to interviewees, a new sensation of institutional transparency improvement has been noticed within this PAT Huerta elaboration process but it still remains reduced. The Huerta Council would be in charge of those management issues (V1, V2, V6). Throughout all these years, this planning experience has involved formal and informal reflexivity and social learning processes but without systematic and continuous management.

Discussion and conclusions

The urban transformative capacities of Valencia are now further deepened by juxtaposing stakeholder and researcher views on all 18 subcomponents of the framework (Figure 4). The current section discusses and compares the principal findings and identifies emerging lessons.

Figure 4: Differential assessment of urban transformative capacity through spatial planning in Valencia. Author's note: (scale: 1=very weak, 2=weak, 3=average, 4=strong, 5=very strong).



Agency and interaction forms (C1-C3)

As stated by stakeholders, PAT HUERTA participation processes have been inclusive and further developed than ever before but governance system and networks seem still to be in development. We can recognize important underestimations in stakeholders' marks for actor diversity because they don't have an overall picture of governance networks. There are a good number of social collectives sharing and supporting a vision towards sustainability but there still remains a lack of space for them due to the administration conservative development pathways. Furthermore, stakeholders' intermediary scores tend to be much higher than those attributed by the research team. This overestimation reproduces government interviewees' predictions on the Huerta Council which is not constituted yet. In fact, there are no official networking or stakeholder discussion spaces beyond the plan elaboration process for the moment.

In spite of all of these factors, there are diverse and strong leaderships but the old and well-known barrier between urban and rural thinking emerges. Generally there is no cohesion between these actors but both collectives have a clear focus on social needs and sustainability.

Core development processes (C4-C8)

In general, stakeholders' capacity development process scores are overestimated. This reflects the perception of PAT HUERTA processes as a positive and even radical change compared to urban planning of the past. However, the researchers' point of view is quite critical due the lack of administration transformative structures and the insufficient access to resources, which avoids disruptive initiatives and experiments. In turn, flexible regulation to support these innovative initiatives has been detected but there is a sense of excessive bureaucracy by stakeholders. Otherwise, stakeholders and researchers share knowledge production component scores but not for the same reason. While stakeholders have a positive point of view due the bad experiences in the past, researchers' perceive a lack of coordination and systematization. In fact, reflexivity and social learning (C8) is considered in the average score for the same reason. In spite of reflexivity and social learning being complete and extensive during all the spatial plan elaboration process; these spaces to reflect on were not developed systematically but through informal pathways. According to researchers, monitoring tasks should be further implemented to guarantee the feedback quality and future reorientation of urban spatial planning.

Relational dimensions (C9-C10)

According to the differential assessment graph (Figure 4), general researchers' critical point of view towards sustainability has been noticed but not in working with relational dimensions. While working across agency levels and political structures is never easy, urban planning emphasizes and involves these issues by definition. Multi-actor, multi-scale, multiple political levels and cross-domain issues have been considered throughout entire planning processes. However, horizontal and vertical integrations still remains a key weakness. In this way, there is recognized a traditional Spanish spatial planning lack of integration, coordination and cooperation among public administrations at different levels is recognised which suggest that much more effort is needed.

In conclusion, this preliminary piece of work shows insights in applying Wolfram's framework through spatial planning. The overall findings highlight that assessing transformative capacity towards sustainability helps to design approaches for unlearning the urban planning conservative paradigm and pathways. In this way, this research paper is also claiming for a greater shift to enhance envisioning, sustainable foresight, working with alternative scenarios, reflexivity and social learning in planning. Such a shift implies redesigning current structures and processes. Furthermore, community resources, networking, collective visioning and intermediation mechanisms have been considered underdevelopment drivers towards sustainability in Valencia. Finally, this research work offers significant potential to enable reflexivity among stakeholders regarding key transformative capacity strengths and weaknesses.

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References

Avelino, F., Wittmayer, J.M., 2016, Shifting Power Relations in Sustainability Transitions: A Multi-actor Perspective. Journal of Environmental Policy & Planning, 18(5), 628–649. https://doi.org/10.1080/1523908X.2015.1112259

Ernst, L., de Graaf-Van Dinther, R.E., Peek, G.J., Loorbach, D.A., 2016, Sustainable urban transformation and sustainability transitions; conceptual framework and case study. Journal of Cleaner Production, 112, 2988–2999. https://doi.org/10.1016/j.jclepro.2015.10.136

EEA, 1995, The Dobris Assessment Report 1, Date of access: 25/05/2019. https://www.eea.europa.eu/publications/92-826-5409-5

Hoogma, R., Kemp, R., Schot, J., Truffer, B., 2002, *Experimenting for Sustainable Transport : The Approach of Strategic Niche Management* (London, U. K.: Routledge). https://doi.org/10.4324/9780203994061

IEA, 2018, *CO_2 Emissions from Fuel Combustion 2018: Overview* (Paris, France: International Energy Agency).

IPCC, 2014, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)] (Geneva, Switzerland: IPCC).

Fernández-Gimeno, L., López-García, M.J., 2015, Urban expansión of the Valencia Metropolitan Area during the period 1984-2011 from Landsat TM and ETM+ imagery. *Revista de Teledetección*, 44, 1–14. https://doi.org/10.4995/raet.2015.3628

Fischer, L.-B., Newig, J., 2016, Importance of Actors and Agency in Sustainability Transitions: A Systematic Exploration of the Literature. *Sustainability*, 8(5), 476. https://doi.org/10.3390/su8050476

Frantzeskaki, N., de Haan, H., 2009, Transitions: Two steps from theory to policy. *Futures*, 41(9), 593–606. https://doi.org/10.1016/j.futures.2009.04.009

Frantzeskaki, N., Hölscher, K., Bach, M., Avelino, F. (eds.), 2018, *Co-creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities, Future City* (Springer International Publishing).

Frantzeskaki, N., Broto, V.C., Coenen, L., Loorbach, D., 2017, *Urban Sustainability Transitions* (New York, U.S.: Routledge).

Geels, F.W., 2011, The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental Innovation and Societal Transitions*, 1(1), 24–40. https://doi.org/10.1016/j.eist.2011.02.002

Geels, F.W., 2004, From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research Policy*, 33(6), 897–920. https://doi.org/10.1016/j.respol.2004.01.015

Geels, F.W., 2002, Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, 31(8), 1257–1274. https://doi.org/10.1016/S0048-7333(02)00062-8

Geels, F.W., Schot, J., 2007, Typology of sociotechnical transition pathways. *Research Policy* 36(3), 399–417. https://doi.org/10.1016/j.respol.2007.01.003

GENERALITAT VALENCIANA, Ley 5/2018, de 6 de marzo, de la Generalitat, de la Huerta de València, DOGV n. 8252 de 12.03.2018, Date of access: 25/05/2019. https://www.dogv.gva.es/va/eli/es-vc/l/2018/03/12/5/

Gielen, E., 2015, Costes del Urban Sprawl para la Administración local. El caso valenciano. Thesis, Universitat de Valencia, Spain, Date of access: 25/05/2019. https://riunet.upv.es/handle/10251/62866

Grin, J., Rotmans, J., Schot, J., 2010, *Transitions to Sustainable Development: New Directions in the Study of Long Term Transformative Change* (London, U. K.: Routledge).

Grin, J., Rotmans, J., Schot, J., 2010, Introduction: from persistent problems to system innovations and transitions. In: Grin J., Rotmans J., Schot J. (eds) *Transitions to sustainable development. New directions in the study of long term transformative change* (London, U. K.: Routledge), pp. 1-8.

Gillard, R., Gouldson, A., Paavola, J., Alstine, J.V., 2016. Transformational responses to climate change: beyond a systems perspective of social change in mitigation and adaptation. *Wiley Interdisciplinary Reviews: Climate Change*, 7(2), 251–265. https://doi.org/10.1002/wcc.384

Hölscher, K., Wittmayer, J.M., Loorbach, D., 2018, Transition versus transformation: What's the difference? *Environmental Innovation and Societal Transitions*, 27, 1–3. https://doi.org/10.1016/j.eist.2017.10.007

Loorbach, D., 2007, Governance for sustainability. *Sustainability: Science, Practice and Policy*, 3(2), 1–4. https://doi.org/10.1080/15487733.2007.11907996

McCormick, K., Anderberg, S., Coenen, L., Neij, L., 2013, Advancing sustainable urban transformation. *Journal of Cleaner Production*, Special Issue: Advancing sustainable urban transformation, 50, 1–11. https://doi.org/10.1016/j.jclepro.2013.01.003

Melo, C., 2018, City and country relationships in the metropolitan area of València: Teritorial policies for l'horta landscape. In: Baron-Yelles, N., Romero González, J. (eds.), *Cultura Territorial e Innovación Social: ¿Hacia Un Nuevo Modelo Metropolitano En Europa Del Sur?* (Valencia, Spain: Universitat de València), pp. 427-440.

Miralles I Garcia, J.L., 2018, New policies for the management of periurban agricultural spaces. The case of L'Horta de Valéncia (Spain). *International Journal of Design & Nature and Ecodynamics*, 13(4), 361–372. https://doi.org/10.2495/DNE-V13-N4-361-372

Palau-Salvador, G., de Luis, A., Pérez, J.J., Sanchis-Ibor, C., 2019, Greening the post crisis. Collectivity in private and public community gardens in València (Spain). *Cities*, 92, 292–302. https://doi.org/10.1016/j.cities.2019.04.005

PAT HUERTA, 2018, Plan de Acción Territorial de Ordenación y Dinamización de la Huerta de València. Conselleria de Vivienda, Obras Públicas y Vertebración del Territorio, Generalitat Valenciana, Date of access: 25/05/2019. http://www.habitatge.gva.es/es/web/planificacion-territorial-e-infraestructura-verde/huerta-de-valencia

Rip, A., Kemp, R., 1998, Technological change. In: S. Rayner, E.L. Malone (eds.), *Human choice and climate change. Vol. II, Resources and Technology* (Columbus, Ohio, U.S.; Battelle Press), pp. 327-399.

Rotmans, J., Kemp, R., van Asselt, M., 2001, More evolution than revolution: transition management in public policy. *Foresight*, 3(1), 15–31. https://doi.org/10.1108/14636680110803003

Segura Calero, S., 2017, Spatial planning monitoring and evaluation. A comparative international analysis. Thesis, University of Seville, Faculty of Geography and History, Spain, Date of access: 25/05/2019. http://hdl.handle.net/11441/64003

UN DESA, United Nations, Department of Economic and Social Affairs, Population Division, 2018, The World's Cities in 2018—Data Booklet (ST/ESA/ SER.A/417), Date of access: 25/05/2019. https://www.un.org/en/events/citiesday/assets/pdf/the_worlds_cities_in_2018_data_booklet.pdf

Wittmayer, J.M., van Steenbergen, F., Frantzeskaki, N., Bach, M., 2018, Transition Management: Guiding Principles and Applications. In: Frantzeskaki, N., Hölscher, K., Bach, M., Avelino, F. (eds.), *Co-creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities, Future City* (Springer International Publishing), pp. 81-101. https://doi.org/10.1007/978-3-319-69273-9_4

Wolfram, M., 2019, Learning urban energy governance for system innovation: an assessment of transformative capacity development in three South Korean cities. *Journal of Environmental Policy & Planning*, 21(1), 30–45. https://doi.org/10.1080/1523908X.2018.1512051

Wolfram, M., 2018, Assessing transformative capacity for sustainable urban regeneration: A comparative study of three South Korean cities. *Ambio*, 48(5), 478-493. https://doi.org/10.1007/s13280-018-1111-2

Wolfram, M., 2016, Conceptualizing urban transformative capacity: A framework for research and policy. *Cities*, 51, 121–130. https://doi.org/10.1016/j.cities.2015.11.011

Wolfram, M., Borgström, S., Farrelly, M., 2019, Urban transformative capacity: From concept to practice. *Ambio*, 48(5), 437–448. https://doi.org/10.1007/s13280-019-01169-y

Wolfram, M., Frantzeskaki, N., Maschmeyer, S., 2016, Cities, systems and sustainability: status and perspectives of research on urban transformations. *Current Opinion in Environmental Sustainability*, 22, 18–25. https://doi.org/10.1016/j.cosust.2017.01.014