

Knowledge, policy making and learning :

an evolutionary approach to achieve policy resilience in European cities

How to build the local capacity to address grand societal challenges such as climate change, ageing and unemployment? While routine policy making is already challenging, addressing complex challenges also requires advanced knowledge, in terms of information on complex phenomena, models to interpret this information, and tools that can be implemented. However, cities have limited staff and few resources to carry out context-specific research to deal with complex issues. Focusing on the role of knowledge for policy making, this contribution aims to provide an innovative framework on how cities could manage and develop their cognitive resources to improve their capacity to cope with grand societal challenges and thereby develop strategies that will promote 'policy resilience' of European cities.

This contribution proposes an innovative framework adapting evolutionary lenses to knowledge for policy making. By focusing on the variation, selection and preservation of knowledge for policy making, cities need to shift their priority to support and promote policy entrepreneurship, invest in proactive development and exchange of local knowledge, and conceive local governments also as learning organisations. This approach is supported by two examples from the Brussels-Capital Region, and is based on a European research network on policy learning. Before entering into the discussion, it is important to define 'policy knowledge' as the availability of policy-relevant information, models to understand and interpret

this information, and tools to be implemented. Thus, policy resilience is the local capacity to use this knowledge to cope with grand societal challenges.

> Knowledge for local policy making

The local capacity to self-adjust internal conflicts, to avoid (under-)development lock-in and to react to external stimuli is fundamental for European cities. This capacity, defined as 'policy resilience', is even more crucial when cities want to tackle grand societal challenges such as climate change, ageing, unemployment, energy transition, poverty and security. The complexity of these policy challenges requires advanced knowledge in terms of policy making skills, technical expertise, and capacity to develop and implement context-specific solutions to address multidimensional, trans-disciplinary and long-term issues. Different from all upper tiers of government, cities have more limited resources in terms of staff, local experts, and possibilities to carry out context-specific research programmes as well as scanning for solutions available elsewhere. On the other hand, cities are known for being the place of production, validation, exchange, translation and application of knowledge, where creativity and tacit knowledge takes place through repeated direct contacts amongst people with different backgrounds (Moulaert and Sekia 2003).

To tackle this limited knowledge, 'quadruple helix' and policy mobility have been two of the emerging strategies to overcome these structural limitations. In the first case, cities try to involve universities, firms and citizens in a process of 'co-creation/co-production' of knowledge to understand context-specific dimensions of grand societal challenges and find collective solutions to be implemented (Pohl 2008). The second emerging trend is policy mobility (Peck 2011): cities scan for knowledge from experiences elsewhere in a process of policy exchange across cities (e.g. Urbact). However, the local capacity to trigger effective quadruple helix and to learn from elsewhere is still an open field of research, specifically considering the broader challenge of 'policy learning' (Capano and Howlett 2009).

> An evolutionary perspective

The innovative part of this contribution is the application of evolutionary lenses to understand the dynamics of knowledge for policymaking in European cities (Slembeck 1997). This way of thinking is both a heuristic and normative approach based on three fundamental notions: variation, selection and preservation. While this approach was very fruitful to understand technological and business-oriented innovations for example, as with Schumpeter, the application to knowledge for policy making challenges common beliefs and provides important policy implications.

Before analysing in-depth each of the three key notions, the fundamental assumptions of evolutionary thinking have to be summarised referring to policy making. First, policy makers have 'bounded rationality', meaning that they do not and cannot know 'everything': knowledge is always structurally incomplete. Second, policy making is a cumulative process: current decisions are affected by past decisions since policy makers and stakeholders do have memory and each decision is related to its context. Third, the evolution of a system (i.e. a city) is not the sum of individuals: something beneficial for the system can be detrimental for some individuals, and something negative in the short term can determine benefits in the long run. Fourth, 'deviant' elements are the fundamental source for change; however, it is difficult to predict the sources of these deviations. Based on these fundamental assumptions, the evolutionary framework to knowledge for policy making can be described as follows.

- Variability refers to the local availability of knowledge to address policy issues, namely grand societal challenges. Traditionally, this

refers to an 'adequate' local understanding of policy issues. However, an evolutionary approach also requires a qualitative heterogeneity: not just the amount of data and tools, but also an array of approaches, theories and models to interpret them as well as tools that can be implemented.

- Selection refers to the way policy makers choose the knowledge to be used when they take decisions. Different patterns can be identified such as the use of already available knowledge ('business as usual'); co-production with knowledge providers (e.g. universities, consultants...); competition through open calls for ideas; policy mobility; participative approaches with citizens' groups etc. All these patterns have to be analysed to understand how policy makers 'learn' what is needed to make a decision and implement a policy. Indeed, this implies that not all the available knowledge can be used by policy makers; on the other hand, policy makers can only draw on the knowledge that they can access and understand.

- Preservation refers to the 'memory' of policy makers based on past experiences, lessons learned and acquired knowledge. While the process of policy learning takes time and is cumulative, the 'memory' of policy makers shapes the process of policy making, their perceptions, their cognitive framework to define a problem and their capacity to interact dealing with potential conflicts. Looking at the way cities 'preserve' their policy knowledge it is possible to understand long-term dynamics, path dependency and cases when cities do not learn or disperse acquired knowledge.

Each variable presents specific challenges when the point of view of cities is taken into consideration. At the local scale, variety risks being structurally limited due to the lack of critical mass where complex societal challenges have to be understood in their local specificities: how many experts can provide understanding of specific climate challenges in a mid-size town? While limited variety can be overcome by external sources of knowledge through, for example, policy mobility, city policy makers need to have resources to scan for these external sources of knowledge and adapt it to their specific context. Furthermore, policy makers have their own 'policy paradigm', analogous to Kuhn's scientific paradigm (Hall 1993). They tend to reinforce their own approaches rejecting deviant ideas that question their fundamental beliefs. This shapes the way they are open -or not- to 'learn'.

Knowledge for policy making

An evolutionary approach for European cities

	variety	selection	preservation
key concept	heterogeneity	openness to learn	stability
main risk	cognitive lock-in	selective learning	instability
challenges for cities	lack of critical mass	possibilities to learn from deviant sources	individuals acting as gatekeepers

> Two examples

Based on the GREATPI research project, two cases from the Brussels Capital Region show evidence on how to apply this evolutionary approach.

Brussels has a longstanding tradition of underground works since the north-south junction. Despite having a highly contested legacy, this project offered the opportunity to develop outstanding knowledge on underground works tunnels. Thanks to this experience, the corps of engineers working in the Belgian government acquired long-term policy knowledge (Téllier 2012). This corps was able to combine technical expertise with public procedures and political decision making, building an extensive network of underground tunnels for cars, trains and metros (Zitouni and Téllier 2013). This impressive infrastructural achievement was possible because the ministry had the opportunity to develop and preserve long-term expertise on Brussels' underground, where a regionalisation of this competence would have dispersed this policy knowledge. On the other hand, the complexity of this policy field and the long-term perspective needed to build tunnels undermined the possibility for emerging deviant approaches. In evolutionary terms, the ministry was able to 'preserve' policy knowledge acting as a 'learning organisation' dealing with a complex issue.

Brussels is known for an abundance of water and, unfortunately, also for flooding. During the 1990s, the transfer of water competence from the federal to the regional government hampered the first efforts to upgrade water management. Pushed also by European water

directives, Brussels Environment was created in the early 2000s and became fully operational in 2006. This regional administration started an intense policy dialogue with the extensive community of local water experts and activists to deal with flooding. Thanks to the high variety of local policy knowledge, Brussels Environment went beyond requirements imposed by the EU water directives integrating several contributions. Brussels Environment had a proactive attitude discussing with academic experts and local committees, supporting and facilitating local policy knowledge production and choosing valuable contributions beyond the political consensus, although this dissatisfied some others. This proactive strategy by civil servants for a research-policy dialogue should be juxtaposed with the frequent reliance on policy consultants, which is commonly seen as more efficient.

> Main implications

The two cases briefly presented in the previous section provide some insights into how to develop policy-resilient cities. Assuming an evolutionary approach, cities should aim to keep a high variability of policy knowledge on context-specific challenges, strategically select emerging knowledge to avoid the risk of rejecting innovative approaches and preserve policy knowledge to cope with complex and long-term challenges. Based on this framework, three axes of action are necessary to develop policy resilience in European cities.

1. Support policy entrepreneurship. Policy entrepreneurs are actors promoting new information, new models for interpretation, and new tools to be implemented. These

entrepreneurs are different from ‘traditional’ business entrepreneurs (profit-oriented) and political entrepreneurs, interested in being elected. Policy entrepreneurs are interested in improving public policy in itself. While policy entrepreneurship is an open field of research (e.g. what are their motivations?), cities can support them giving access to policy-relevant information, discussing cognitive models and informing them about available tools. Nevertheless, this does not imply that all policy entrepreneurs are successful, i.e. cities should take the risk that policy entrepreneurs fail. The local availability of policy entrepreneurs shall be taken as an indicator of policy resilience.

2. Invest in policy knowledge brokerage. Policy knowledge is not a commodity that can be traded as other commodities. Between production and use of policy knowledge, there are several activities such as acquisition, adaptation, translation, and exchange of knowledge for policy purpose. All these activities require a proactive attitude because learning how to deal with grand societal challenges does not happen spontaneously. While learning by doing can develop tacit knowledge, grand societal challenges require advanced understanding for policy making. The role played by policy knowledge brokers is critical since it can shape how available knowledge is selected and preserved in cities.

3. Governments as learning organisations. In an evolutionary perspective, city governments are the key actors to preserve policy learning, beyond their role as public service providers. Their capacity to select exogenous knowledge and keep ‘memory’ of policy experiences becomes a crucial variable to achieve policy resilience. In this perspective, it is important to highlight the U-turn in the process of decentralisation (Rodriguez-Pose and Gill 2003; Dotti and Bubbico 2014): after decades of increasing power, resources and legitimacy for subnational tiers of governments (cities and regions), the crisis has resulted in large reductions in budget and major cuts in staff for lower tiers of governments. This institutional instability is dispersing relevant policy knowledge available for city governments, undermining processes of policy learning.

policy makers, is the best strategy to guarantee knowledge variety at the local level. Open access to policy information is also relevant to enable policy entrepreneurship. While not all policy entrepreneurs can be successful, a city where citizens, experts and stakeholders do engage to improve local policy is a policy-resilient city, able always to come up with new solutions, ideas and understanding of policy issues. However, this depends on the openness of the policy making community to learn from deviant sources of policy knowledge and the capacity of city governments to preserve this context-specific policy knowledge in the long run. On the other hand, policy makers have their own ‘policy paradigm’ (Hall 1993) affecting the way they choose and preserve knowledge. A research-policy dialogue based on the recognition of the importance of variation in policy knowledge sources, limits and bias of policy knowledge selection, and strategies to preserve this policy knowledge is needed to develop the local capacity to deal with grand societal challenges. This dialogue is the way to exploit the ‘intelligence of democracy’ (Lindblom 1965) achieving policy resilience.

> Conclusions

Following this approach, cities shall promote a research-policy dialogue supporting local knowledge production keeping in mind the need to have heterogeneous approaches, theories and disciplines. The need to support different schools of thought, including those not used by

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