

## **A new form of governance for wicked problems: Enabling strategies for the implementation of urban resilience**

Marie-Christine Therrien, École nationale d'administration publique (Quebec, Canada), [mctherrien@enap.ca](mailto:mctherrien@enap.ca)

Julie-Maude Normandin, École nationale d'administration publique (Quebec, Canada), [julie-maude.normandin@enap.ca](mailto:julie-maude.normandin@enap.ca)

### **1. Introduction**

The trend observed in recent years has been confirmed: scholars (Matyas & Pelling, 2015; Pelling & Manuel-Navarrete, 2011; Scolobig *et al.*, 2014; Stark, 2014) and international organizations (ISDR, 2011; 2005; Rockefeller Foundation & Arup, 2015) have found that crises are increasingly numerous and cause more damage. This phenomenon is mainly due to scientific, economic, political and social transformations that facilitate the development of hazards and render interventions more complex: a globalized economy, interconnected infrastructures, urbanization, improvements in telecommunication and transportation networks, etc. As they confront this new reality, municipalities are seeking policies to reduce local vulnerability and increase capacity for response. In recent years, "resilience" has emerged as a solution supported by scholars, international organizations and government. It is defined as "the capacity of a social system to proactively adapt to and recover from disturbances that are perceived within the system to fall outside the range of normal and expected disturbances" (Boin *et al.*, 2010, p. 9). The development of urban resilience is thus increasingly present in the policy rhetoric around urban development. International initiatives to develop resilience abound, including the UN Office for Disaster Risks Reduction's "Making Cities Resilient" program, the "100 Resilient Cities" project of the Rockefeller Foundation, and the Intergovernmental Panel on Climate Change initiative on urban adaptation. These initiatives promote sustainable urbanization principles and stakeholder collaboration, along with improved preparedness, responsiveness and monitoring at all jurisdictional levels.

However, resilience is not easy to implement. It is associated with flexible processes, network management and collaborative governance, features that fit uncomfortably within the core

Weberian public administration principles of conformity, specialisation and silos (Bourgon, 2009). Resilience depends on collaboration in networks that bring together a wide range of public and private stakeholders (Boin *et al.*, 2007; Therrien *et al.*, 2015) with citizen participation (Drabek *et al.*, 2003). The implementation of resilience requires cultural and structural changes in public administration based on collaborative networks rather than a stovepipe approach (Bourgon, 2009; Perelman, 2007; Therrien, 2010; Therrien *et al.*, submitted), and the development of new adaptive capacities (Stark, 2014; Matyas and Pelling, 2015). Recent research recognizes the magnitude of transformation required for the implementation of resilience (Goldstein *et al.*, 2015; Matyas *et al.*, 2015; Pelling *et al.*, 2011; Scolobig *et al.*, 2014; Stark, 2014). For example, efficiency pressure and procedural rationality have been shown to frame how public administration might develop adaptability, and point to the kinds of innovative approach public servants might envisage to address resilience (Stark, 2014).

Resilience is a complex solution to a complex set of problems, including risk issues such as climate change adaptation, vulnerability to critical infrastructure failure, terrorist attacks, technological accidents, pandemics, etc. These risks exhibit features of wicked problems as they involve interrelated issues, lack definitive formulation, and are subject to different interpretations based on values and rationalities (Rittel *et al.*, 1973).

How, then, can organizations mandated to respond to these challenges by implementing urban resilience bring about the changes it requires? What are more specifically the enabling and impeding mechanisms which organizations are faced with in constructing their resilience strategy? To answer to these questions, we conducted a comparative study of the processes employed by small teams of municipal level organizations as they developed resilience strategies in the cities of Montreal (Canada) and London (UK). In this paper, we first discuss the challenges of implementing urban resilience and propose an analytical approach to looking at the interaction and mutual influence between organizations and networks in that process from the macro and micro contextual elements of the interorganizational relationships and coordination processes. We then present the methodology used in the study and preliminary results for both cases. Finally, present new insights for transformative and collaborative network governance by looking into enabling factors related to collaborative governance and impeding mechanisms attributed to institutional work.

## **2. Mobilising a coalition to address wicked problems and implement resilience**

Developing and strengthening constructive collaboration between partners is a fundamental component in all theoretical proposals for the implementation of resilience (Boin & McConnell, 2007; Cutter *et al.*, 2010; Godschalk, 2003; McManus *et al.*, 2007; Norris *et al.*, 2008; Somers, 2009; Therrien, 2010) and the governance of wicked problems (Head *et al.*, 2015; Weber *et al.*, 2008). In past work, we developed a framework to assess the conditions under which a network can resiliently manage risks and crises it might encounter (Therrien, 2010; Therrien *et al.*, 2015).

These conditions are:

- a) macro contextual elements: economic and political environment; sociocultural context (values, beliefs, informal pressure); complexity of the issue to be managed; interdependence between organizations; and
- b) micro contextual elements: historical relationships; compatibility of organizational cultures; dynamics of power; sharing of resources; mutual agreements.

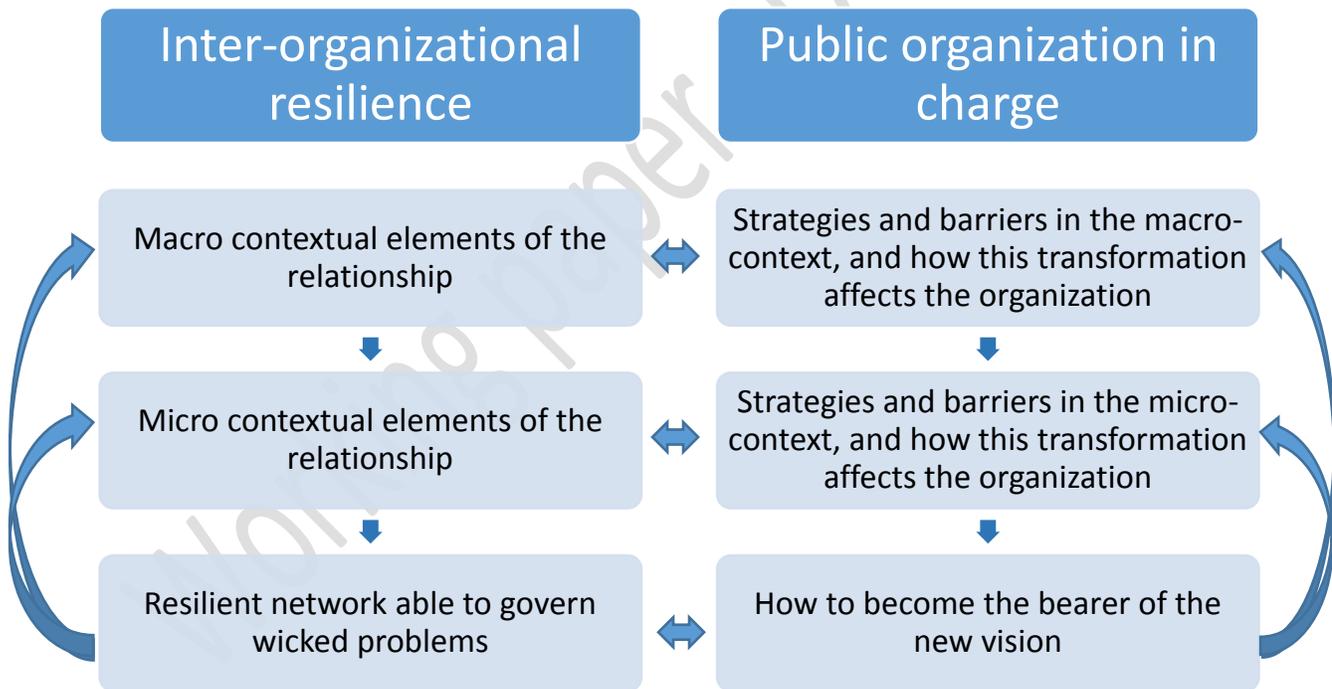
These conditions support the development of interorganizational resilience by leading the network to proactively adapt to and recover from disturbances. But that is not all: as resilience focuses on the governance of specific wicked problems (risks, crises), these conditions also enable stakeholders to negotiate the shared understanding and meaning required to develop coherent actions to address wicked problem in an evolving process rather than looking for one-time all-encompassing solutions (Head & Alford, 2015, attributed to a interview of Conklin, 2007). Adequate governance of wicked problems also needs to carefully tackle loosely coupled management where a lack of coordination, overlapping responsibilities and discontinuity in the management of interdependence create vulnerabilities that may lead to crises (Therrien *et al.*, 2016).

One of the main solutions supported by urban resilience initiatives is for public authorities to explicitly focus on cultivating partnerships and developing networks to define strategic direction. It has been postulated that the actions of public authorities in favour of resilience can be programmatically introduced or at least promoted, but resilience also emerges from spontaneous and unplanned processes based on self-organization in enabling conditions (Therrien, 2010). Case studies show that incremental and transformative adjustments are required for multi-level urban risk governance, the adoption of policies and incentives, relations with the private sector and

appropriate financing and institutional development (Pelling, 2010; Revi *et al.*, 2014). In empirical studies, difficulties experienced by actors in appropriating and making concrete sense of the concept of resilience appear as a major barrier to implementing resilience (Wilkinson *et al.*, 2010). According to Goldstein *et al.* (2015), narratives and storytelling can help communities make sense of their conditions (defining problems) and envision possible futures (setting objectives). Moreover, divergent narratives can help reconfigure identities, revise relationships, and reshape knowledge and assumptions (Goldstein 2015, p. 1299).

To understand how organizations work to accomplish this transformation in their operations, values and power, we undertake a parallel analysis of three aspects of the development of a resilient network (macro-context, micro-context, outcomes), looking at enabling strategies used by organizations, barriers that impede progress, and the impact of these transformations on the organisation.

Figure 1: Organizational and inter organizational effects of developing resilience



## 2.1 Enabling strategies and impeding barriers for implementation

Enabling strategies refer to elements that facilitate crisis resolution and mobilization to confront risks, such as situation awareness, binding effects, trust, mindfulness, collaboration, deference to

expertise, general agreements and perceived interdependence and environmental complexity. (Berthod *et al*, 2014. Ginter *et al* 2006; Roe and Schulman 2008, Roberts 1989; Therrien *et al*, 2014). Many of these strategies can also be linked to network and collaborative factors such as working across the organizational boundaries, creating joint capacity for action and a sharing of values and motivation.

Impeding barriers refer to organizational values, resources, rules and management models, as well as the development of external network relationships that increase vulnerability (Therrien, 2010, Therrien *et al.*, 2015b). The perceived “appropriateness” of behaviours, simplified interpretation of incidents, confusion and demobilization resulting from mishandled reforms, or perceptions that precautions are unnecessary are all examples of impeding mechanisms (Busby 2006, Dalzell and Willing, 2000; Mitroff and Pauchant, 1995; Sydow *et al*, 2009; Bracco *et al*, 2008; Wilson and Norris, 2006; Weick and Sutcliffe, 2006; 2011). Moreover, the impeding mechanisms could also be linked to elements identified in institutional work which ‘is the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions’ (Lawrence and Suddaby, 2006, p. 214). These mechanisms are related to survival of routines, compliance rules, institutional assumptions, etc.

### **3. Methodology**

This paper focuses on the second step of a larger research program on urban resilience started in 2014 that involves action research in the cities of London and Montreal, both participating in 100 Resilient Cities (100RC), a project pioneered by the Rockefeller Foundation. The objective of the research program is to understand, through comparative case studies, how municipalities implement resilience. These cities were selected because they had explicitly initiated a process to increased urban resilience, London since the year 2000 and Montreal in 2014. Despite significant differences in population (Greater London has a population of around 8.5 million people, while Greater Montreal has 2 million), both cities are administratively complex, with different administrations for city centres and surrounding boroughs, and both involve public and private partners in the implementation of resilience.

We began by conducting exploratory research on the early stage of the development of urban resilience in each city in order to understand how municipal actors and stakeholders planned and

implemented urban resilience before they joined the 100RC. In the first round of data collection, we conducted 20 exploratory interviews (12 in London and 8 in Montreal) with middle managers and street-level bureaucrats directly involved in the development and implementation of resilience. We then held three workshops (2 in London and 1 in Montreal) with an initial convenience sample of resilience team members, municipal stakeholders in related areas (environment, police, etc.) who worked with the teams, actors from other municipal levels (boroughs), and external stakeholders (ministries). Detailed notes were taken by a member of the research team. These 3-hour workshops helped to elucidate interaction within the community of practice as well as the expectation and implementation landscape. There was some overlap between workshop and interview participants. Two sets of questions were used to stimulate discussion during the workshops and provided the basis for cross-actor learning about a) definitions of resilience, and b) network and (inter)organisational elements of resilience. Third, we collected secondary sources such as city policies, laws, internal documents produced by the actors (list of partners and strategic planning), and public documents produced by the cities of London and Montreal detailing risk analyses, risk registers and public meeting minutes. This multi-pronged approach to data collection increased the internal validity of the research based on the triangulation of data generated by multiple perspectives (Denzin, 1989).

After this first round of data collection, we focused on intra- and inter-organizational challenges in elaborating and implementing urban resilience. At the end of 2016, we conducted follow-up semi-directed interviews with managers and bureaucrats in charge of developing urban resilience who we had previously interviewed in 2014 (3 people in London, 4 in Montreal). The objective is to collect data about challenges they faced in the development of resilience, and transformations that occurred within their organization during that process. We also collected secondary source documents produced since 2014. *In 2017, we pursued interviews in London (4 people over the phone) and Montreal (5 people) to develop further our understanding of enabling strategies and impeding mechanisms. Unfortunately, because of events in London and in Montreal, we were unable to complete a satisfactory number of interviews, and were unable to send out a questionnaire. We will be able to do so in the fall, such is life as a researcher in crisis management and resilience!*

We used an interpretative inductive approach to better understand actors' views (Creswell, 2013), and analysed qualitative data on their interpretations of the iterative development of networks to

implement urban resilience and of the evolution of the public organization leading this mandate in their city. Our two-step data collection process allows us to analyse the evolution of resilience in networks and lead organizations by comparing the situation in 2014 to that seen in 2016-2017.

#### **4. Macro and micro contexts of London and Montreal**

In this section, we present the evolution of macro and micro contexts, and the transformation of organizations based on an analysis of data from both cities.

##### **London**

At the beginning of 2000, the British government reviewed its emergency planning following high visibility events (BBC, 2001; Cabinet Office, unknow; Rothstein *et al.*, 2013) (e.g. the bovine spongiform encephalopathy crisis, flooding, outbreak of foot and mouth disease) and questioning around the UK's capacity to cope with a terrorist attack after 9\11 in the US. These macro context occurrences led to the creation in 2002 of the London Resilience Team (LRTeam), an organizational unit composed of officials from emergency services (the unit existed beforehand, but in another form). This unit became the expert organization in charge of providing strategic advice, ensuring coordination, and sustaining the elaboration and implementation of urban resilience, either by itself or with partners. The responsibilities of this organization were formalized by the Blair government's passage of the Civil Contingencies Act of 2004.

This Act also created the London Resilience Forum (LRForum), a complex network of around 20 public and private organizations who formally represent every sector that has a role in preparing for, responding to and recovering from emergencies, such as local authorities, emergency services, utilities, and environment, health, transportation, business, voluntary and faith organizations. The network chair is designated by the mayor from among elected members of the London Assembly. Forum members meet 2 to 3 times a year to set the city's urban resilience strategy, classify priority risks, and provide means and coordination for crisis management. According to minutes from these meetings, the Forum aims to enhance the micro-context by creating a common understanding between organizations about their mission, share information, develop trust and develop common risk assessment plans. Interviews also highlight the importance of consensus decision-making and personal trust relationships. However, even if this is driven by legislation (obligation under the Civil Contingencies Act), actors feel that there is interorganizational development because of: training, frequency of contact and a general recognition that a multi-agency network leads to a

better response to the citizens of London. Actors also expressed that even if they have gained speed in working together and sharing problems, they sometimes feel that the multiagency planning might sometimes be easier if ‘we do it ourselves’. The amount of meetings and how this increases their workload, the discussions around the sharing of resources (such as databases and information) and their own individual legislation which they are bound by makes them say it is a difficult balance between ‘having a cost effective response but a time consuming business’.

The interorganizational Forum also takes into account a larger network, the London Resilience Partnership (LRPartnership), composed of over 170 organizations that play a role in developing London's resilience. In this partnership, the LRForum acts as senior governance body to represent the strategic interests and agendas of the various sectors involved. Members of each sector (e.g. business, voluntary, transportation) organise panels to focus on specific issues and discuss decisions of the LRForum. In this system, six Sub-Regional Resilience Forums share information with the boroughs.

In an effort to decentralize following the abolition of the Government Office for London, oversight of both the LRTeam and the LRForum was transferred to the Greater London Authority (GLA) in 2010. At that time, the mandates of LRTeam and LRForum members were oriented toward preparing to deal with safety issues during the London Olympics of 2012. This mega-event set the macro context in a way that led organizations to recognize their interdependence and the complexity of facing an emergency during this event. Moreover, interviews showed that blame avoidance (Hood, 2011) played a role as “no agency wanted to be blamed for something going wrong or not working”.

LRForum minutes reveal that preparation for this event enabled organizations to develop new good practices that they aimed to incorporate into their regular interorganizational processes of coordination, database management and situation awareness. However, the process slowed after the Olympics, as the LRTeam confronted work overload following a significant reduction in its human resources.

In 2014, London authorities decided to transfer the LRTeam to the London Fire Brigade starting in 2015, where it would work with the Operational Resilience Unit and Emergency Planning Team. In 2016, these teams merged into the *London Resilience Group* (LRGroup). Over just a few years, the LRTeam went from being the policy core of resilience efforts, to functioning as an

implementation agency for operations and interventions, with decreased administrative capacity and resources. Early on in this change, bureaucrats expressed concerns that this new organizational positioning would reduce the Unit's capacity for action and result in further downsizing. Preliminary evidence, however, shows that the LRGroup became more active as it gained access to higher-level decision makers and received support from the new administration and new mayor.

Officials consider that an important contribution of the network system (through the Forum and Partnership) is to provide a forum for discussing the continuum of responsibility between organizations in order to meet public expectations in case of an incident. Discussion of past events allows organizations to recognize the existence of not just technical interdependencies, but also logistical and legislative links (and disconnects). Actors identified factors that contribute to this process, notably a) austerity that drives sharing among organizations, and b) increasing expectations of the population and politicians for problem solving. According to city officials, one of the organizing tensions in the network is the need to balance requirements to work together based on the Civil Contingencies Act and other macro-contextual elements (such as the need to be prepared for the Olympics), and the fact that organisational performance standards are established by many different laws that uphold a variety of public interests. In other words, strategic discussions to develop capacity for the management of wicked problems highlight contradictory forces in the macro-context that exert differential impacts on organizations. In this sense, one of the new objectives of the network (LRPartnership as established by the LRForum) for the next years, supported by the LRGroup, is to engage policy-makers in the development of resilience, especially to ensure a coherent approach. This objective may change the dynamics around the Forum Table, because the network continues to be oriented primarily toward action and intervention, not strategic action and policy change, mostly based on shocks and very little on stresses. Time will tell, but this new strategic thinking may lead to the development of a new mandate and new capacities at the LRGroup to reach this objective.

Finally, one ambiguous macro-contextual element that may change the mandate of the LRGroup and the strategy of the LRForum is London's participation in the 100 Resilient Cities (100RC) project pioneered by the Rockefeller Foundation. Participation required the nomination of a Chief Resilient Officer at city level to develop a resilience strategy. The project proposed by the former mayor of London for 100RC was developed not by the LRTeam of the LRForum, but by the Mayor's Office for Policing and Crime (MOPAC). Its focus involved work on endemic crime and

violence, infrastructure failure, lack of affordable housing, terrorism, and especially "to tackle cyber-crime and emerging threats that if realised, could disrupt the running of the city (Mayor of London, 2014). The emergence of this organization and the introduction of cyber-crime risk into public discussion of resilience contributed to creating diverging agendas around priorities and diverging views on the role of the unit in charge, creating a more competitive macro context around formal responsibility for the development of resilience (Therrien *et al*, revised and resubmitted). This issue is pending and will soon to be decided by the new mayor of London, who identified resilience as one of his key objectives for London in the strategic document presenting the vision for his mandate (Greater London Authority, 2016).

## **Montreal**

Emergency preparedness and response in Montreal is the responsibility of the Civil Security Centre (CSC), an administrative unit composed by 15 officials within the fire department for more than 20 years. In addition to their area of expertise (environment, communications, emergency management, etc.), CSC employees have developed capacity in coordination as they connect experts working at the complex municipal level and externally, thereby benefitting from data and knowledge held by these stakeholders and city departments without intruding on their domains. The CSC mandate is to prepare intervention plans and participate in the coordination of interventions when necessary. Its structure and partnership are mainly geared to preparing for and responding to events, and, secondarily, to adapting to or reducing vulnerability.

The network related to the CSC is the Civil Security Organization of Greater Montreal<sup>1</sup> (CSOGM), a coordinating body that includes the 33 boroughs and municipalities of Greater Montreal, municipal central services (public works, police, water services, etc.) and external partners (public transport services, the provincial Ministry of Health, etc.). This coordination body has a mandate to share information to ensure the prevention of major disasters and the preparedness of city departments and the 19 boroughs and 14 municipalities on the Island of Montreal. Because of the administrative/legislative fragmentation between boroughs and municipalities, there are 33 separate risk management and intervention plans for the Island of Montreal. In contrast to London and the LRForum, the Montreal network focuses more on municipal entities, includes limited numbers of external organizations involved in critical infrastructures (health, transportation), and

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<sup>1</sup> In French, l'Organisation de sécurité civile de l'agglomération de Montréal, OSCAM

does not include members of external sectors such as the business community, voluntary organizations and faith organizations. The CSOGM is mainly composed of operational emergency management practitioners (e.g.: ambulance services, police, public works, etc.), and share a common culture that favours intervention activities and practical problem-solving capacities. However, over the past few years, employees from the CSC, the environment department and the public works department have stated a need to work more on reducing vulnerabilities and adapting to emerging risks such as climate change. Their goal is to embrace a more inclusive approach rather than focusing strictly on emergency management. Consequently, the CSOGM is now animated by two kinds of mission: a traditional focus on planning for and responding to emergencies, and a new mission to develop urban resilience by working before an event and addressing horizontal issues that cross municipal departments and other levels of government. It is also important to consider that the term “resilience” is new in Montreal and in Canada, only recently starting to appear in policy documents or official speeches. In this sense, the Canadian political environment can be seen to have slowed the convergence of actors to reach resilience objectives.

An important opportunity emerged in 2014 as Montreal became part of the 100RC project. To develop the Montreal Resilience Strategy, the municipality nominated as Chief Resilience Officer the head of the Civil Security Centre, who now wears both hats and splits her time between the two mandates: emergency management (still with the CSC) and resilience development (called Bureau de la Résilience), with the support of three employees. This organizational transformation partly changed the power dynamics in the municipality of Montreal: instead of developing ad hoc projects to manage cross departmental issues, the Chief Resilience Officer gained legitimacy to reflect strategically on issues traditionally covered by other departments (environment, vulnerable populations, health, etc.). Interviews revealed that this sensitive issue was tactfully managed to avoid organizational resistance. This new double unit is however characterized by the fact that all emergency planning (CSC) remain under the jurisdiction of the Montreal fire department whereas the resilience development (Bureau de la Résilience) is under the jurisdiction of the Adjunct Director General’s office for quality of life.

A new network of partners emerged through this transformation. Instead of only soliciting the point of view of the emergency community through CSOGM, Montreal followed the 100RC process by inviting a large diversity of actors to participate in identifying priorities that should be addressed in a resilience strategy. In the beginning, 101 people participated in a one-day workshop, and 70

people joined a working session. Actors were grouped into four categories based on their field of expertise: 1) diversity and social equity, with public and private organizations working with vulnerable population; 2) urban infrastructure and networks, with managers of critical infrastructures such as transportation and telecommunications; 3) prosperity and innovation for the business community; and 4) quality of living environments, with organizations working on sustainable development, urban planning and public health. A steering committee was created, with 14 internal members representing municipal entities of Montreal and 14 external members from public and private organizations. The objective of this committee, which met just once, was to support the development of the urban resilience strategy.

Interviews revealed that the Chief Resilience Office's biggest challenges are first to stimulate the participation of partners, and second to gain partner support for further development of the resilience strategy. To date, organizations that are traditionally related to Center of Civil Security (emergency community, environment and health) have been active participants, based on personal relationships developed over time that they mentioned in interviews, and possibly also based on mutual agreement about the benefits of their participation and the significance of resilience. Micro-contextual elements supported the development of this new informal network. The situation is more complex with external organizations, as they had not developed many prior relationships with the CSC, and some needed to be convinced of how urban resilience would benefit their sector of activity. For example, despite many invitations, the business community has participated very little in the process. Also, macro-contextual elements do not have the same influence on external organizations. Municipal units were encouraged to participate fully in the process, as the Mayor and Director General supported development of a resilience strategy. External organizations did not necessarily feel the same political pressure.

The future consolidation of this new network and members' willingness to actively support the implementation of the resilience strategy will probably depend on the capacity of the Chief Resilience Office to influence the macro and micro context. Development of mutual agreements on the expectations of partnership and future benefits could be key elements in the micro-context. There may also be opportunities to engage a public discussion about the importance of resilience, and frame the resilience strategy as a centerpiece for city development in an uncertain world. Such actions could influence the political environment and the sociocultural context by increasing the popularity of the concept of resilience.

## 5. Discussion

Our exploration lies how the development of urban resilience transforms urban governance by dealing with horizontal issues and by working through networks and looks at how the implementation of urban resilience is a challenging issue as it upsets the silo governance approach. Moreover, we look at how this implementation raises issues of power and hierarchical position that require not only management by administration, but also political positioning and leadership. We also look at how an interdependent system which does not necessarily work concertedly muddles through to find solutions to rethink its governance of wicked problems. Moreover, it faces challenges considering that individual organizations have their own objectives and work to carry out. Therefore, considering the elements raised in the description of the micro and macro contexts of each city, we now discuss the coming together of these organizations to implement resilience considering they have to deal with enabling and impeding mechanisms.

### 5.1 New insights for transformative and collaborative network governance

From the literature on collaborative network governance (Emerson *et al.*, 2012; Ansell and Gash, 2008) we can call upon different elements related to collaborative dynamics to understand some of the factors which enable strategies in developing a ‘resilience’ governance framework. We look at elements such as working across boundaries, creating joint capacity and shared motivation, all encompassed in a system context and pushed by drivers (Emerson *et al.*, 2012).

However, collaborative governance offers an outside view of the criteria for the collaboration to work, it does not enlighten us to the hindering elements which tend to impede the capacity of organizations to implement resilience in an interorganizational collaborative network. We find that such impeding elements can be explained and attributed to the mechanisms which maintain individual institutions and more specifically to institutional work factors. The construction of a collaborative network to implement resilience in a city looks like a balancing act between having to maintain individual institutional goals and practices, but also participating in collaborative work to break across the silos and coordinate for wicked problems. Even if authors describe the process of collaboration building as an iterative process which is ‘cyclical rather than linear (Ansell and Gash, 2008) in terms of negotiating the terms of the collaboration such as barriers to change, embedded routines and practices, etc., little is said of the impeding individual organizational or institutional work factors.

The macro-contextual elements relate to the system context drivers (Emerson *et al.*, 2012) or the starting conditions (Ansell and Gash, 2008) whereas the micro-contextual elements relate to the collaboration dynamics (Emerson *et al.*, 2012) or the collaborative process (Ansell and Gash, 2008). However, the cases of London and Montreal reveal that some of the enabling and impeding mechanisms related to the implementation of a resilience strategy lie in the links between the macro-context, the micro-context and institutional work factors.

In table 1, we present how the enabling mechanisms of coordination can be related to impeding collaboration mechanisms extracted from institutional work literature (Lawrence and Suddaby, 2006) from a collaborative governance standpoint. We then proceed to show how these mechanisms expressed themselves in resilience implementation in London and Montreal.

Network and collaborative governance factors	Mechanisms enabling collaboration	Mechanisms impeding collaboration
Wanting to collaborate across boundaries	<ul style="list-style-type: none"> <li>- Incentives to collaborate</li> <li>- Past history of conflict or collaboration</li> <li>- Imbalances in power or resource</li> </ul>	<ul style="list-style-type: none"> <li>- Individual institutional logics and identities</li> <li>- Institutional barriers to change and adaptation</li> <li>- Normative foundations of the organization</li> </ul>
Creating joint capacity	<ul style="list-style-type: none"> <li>- Procedural and institutional arrangements including a commitment to process</li> <li>- Facilitative leadership</li> <li>- Sharing knowledge and resources</li> <li>- Agreeing on shared facts and data</li> </ul>	<ul style="list-style-type: none"> <li>- Survival of routines, protecting resources</li> <li>- Rewards and sanctions to compliance of organizational rules</li> <li>- Protecting the moral obligations of the organization</li> <li>- Being threatened by economic or authoritative measures.</li> </ul>
Shared motivation (and values)	<ul style="list-style-type: none"> <li>- Clear mission of the network</li> <li>- Shared understanding</li> <li>- Common problem definition</li> <li>- Identification of common values</li> </ul>	<ul style="list-style-type: none"> <li>- Embedded daily routines</li> <li>- Institutional assumptions</li> <li>- Organizational practices</li> </ul>

Table 1: Links between enabling and hindering collaboration mechanisms in network governance

### 5.1.1 Wanting to collaborate across boundaries

Cities as other tidy hierarchical public bureaucracies are being reshaped to establish lateral and vertical ties in order to face the complexity of resilience governance. Kickert (1993, p. 201) establishes these issues not as ‘problems and difficulties which have to be mastered, but as sources of innovation’. These ‘innovative structures’ coming in the form of cutting across silos to create interorganizational coordinating structures are pushed into collaboration either by legislation such as in the Civil Contingencies Act in London or in incremental network coordinating bodies such as the CSC in Montreal controlled by an outside provincial legislation as explained above. But as one actor mentioned ‘there is a clash between the legislations in controlling us and the ones controlling agencies as single bodies’.

Incentives to collaborate, past history of conflict or collaboration and imbalances in the power or resource between organizations are all critical conditions to understand in the initial conditions to understand collaborative governance, but also the institutional design of the actual network needs to be assessed. These conditions might not be sufficient to comprehend fully how individual organizations have their own institutional mechanisms which enables (or impedes) them to participate in working across boundaries (Sharifi *et al.*, 2017). In both cities, some organizations taking part in the network choose to name a person who acts as a representative to take part in the discussions around planning for emergencies. More importantly, they often do so not only to create a coordinating object but also to create a barrier to protect their own complexity. This is the case with health organizations. Whether in London or in Montreal, they refer to their organization as being so complex that they need to act as a translator to others but also because they somewhat gain in having their sector (health) recognized as being complex. They gain protection of its specific identity but also maintain its recognized power of its sheer size and budgetary might. By doing so they act as identity protectors.

Other impeding factors are related to the actual rules and regulations which characterize the different organizations participating in the network. All individual organizations are constituted with rules and regulations by which they abide. However, when they come together in the network, they need to negotiate not only with network members but also with their own organization as negotiated agreements may be obstructed by some individual organizational rules. For example, police work in both cities has specific rules in terms of perimeter management which sometimes

differs from the actual needs during an event. The police therefore tends to protect its normative foundations.

### 5.1.2 Creating joint capacity

The mechanisms that create joint capacity is a combination of necessary elements: procedural and institutional arrangements including a commitment to process, facilitative leadership, sharing of knowledge and resources, and more particularly agreeing on shared facts and data (Emerson *et al.*, 2012; Ansell and Gash, 2008). These mechanisms are ‘un balanced’ by institutional mechanisms such as the survival of routines, protecting resources, rewards and sanctions to compliance of organizational rules, a possible opposition between having to protect the moral obligations of the organization, being threatened by economic or authoritative measures.

In both cities, the individual participation of many dozens of organizations to the collaborative resilience network shows a general consensus to create a capacity for action. Most organizations we encountered felt that they gained more in participating to the joint effort than they lost. However, because many of them are short on resources, and more specifically public organizations, they are often split between sharing and committing resources to the network. In the case of risk assessment, most organizations carry their own vulnerability assessments but then also need to carry out protective measures and actions related to their own legislation. Therefore, their internal resources will often be more committed to protecting their own activities and responsibilities, as they feel they might sanctioned if they don’t carry out their work. This can be seen from municipal organizations from a territorial stand point, but also from utility companies, health organizations, police organizations, etc. This occurs even if they all stand behind the concept of sharing of resources. The pooling of resources, as mentioned by an actor, ‘is good but not enough to actually sustain in the long run [the network]’. Moreover, the network has no sanctioning capacity and the reward lies in the virtue of protecting the citizens.

Another important characteristic lies in the sharing of data in the network in order to create a baseline for sharing information but more importantly to have access to coordinated data amongst organizations. In both cities, two issues are quite problematic. First, the participation of private organizations such as utilities, telecommunication, etc. brings on the problem of sharing private and sensitive data in the public sphere. Utility companies are very present in both networks, but

are however reluctant to share their information. From their point of view, they are constrained by their own organizational rules, moral obligations and could face sanctions if they were to share any information which could for example get in the hands of competitors, or even of terrorist (for example in the case of telecommunications). Second, the sharing of data is often in different forms. For example, some of them organize it on a territorial mapping which relates to the outlines of the municipalities and sometimes on a different territorial outline such as electrical distribution of power, which creates difficulties in coordinating actions. In any case, the question lies in who will give up first their data form in order for the network to have more interoperability. Moreover, this would imply modifying individual and protected routines.

### 5.1.3 Shared motivation (and values)

In order to sustain a collaborative network, the participating organizations need to establish a clear mission of the network, create a shared understanding, have a common definition of the problem(s) they want to address and work with (some) common values. However strong the mechanisms might be, we feel that impeding elements such as individual organizational routines and practices, and institutional values and assumptions might clash with the actual functioning of the networks ability to create a thoroughly shared output.

In both cities, all organizations show a high commitment to the process of working in the collaborative network without a doubt. They often commit representatives to represent their organization to the combined actions. However, very few of these organizations have individuals who have all of their time committed to the work being done to coordinate actions. These people often carry other tasks in their organizations, and participating to the coordination of actions in the network is one of them. Another issue lies also in the position of the individual which participates. In most cases, these people do not necessarily assume top positions in their own organizations and therefore are not always comfortable in either positioning and deciding for their organization or having to negotiate inside their organization to shuffle resources.

For all organizations in both cities, all mentioned sharing the common value of ‘working for their city to be resilient’. This is often helped by the fact that both cities have adopted some kind of vision of the future by adhering to resilience with political support by mayors. However strong the political support, the clarity of the ‘destination, of resilience is not always clear (Normandin *et al.*,

2017 forthcoming), which in turn creates some issues between the institutional assumptions and the actual shared understanding of where we want to go and how do we get there. In both cities, the individual institutional assumptions still belong very much in siloed approaches to managing everyday life in the city: water needs to be distributed, garbage picked up, roads fixed, crime stopped. All of these are embedded in daily routines, with limited resources and city development as overarching issues. The amount of energy needed to change these assumptions is still not reached to cut across silos and change organizational practices. For both cities, many interdepartmental structures are created in order to cut across but it is not always clear that are reaching the objective of adjusting daily routine and practices in the established structure (e.g. Smart City Office, Digital Data Office, Resilience Office, etc.).

#### 5.1.4 Coordinating units and leadership

The coordinating organization, in our case the LRGroup or the CSC/Bureau de la résilience in Montreal, are somewhat set apart from these institutional roles. They act as a dealer in trading zones (Kellogg et al., 2017) and often act across structural, cultural and political knowledge sharing boundaries. These coordinating units are recognized as having all types of knowledge sharing because they facilitate ‘cross-boundary coordination through the construction of shared commitments (common ground or common knowledge) and the use of various boundary spanning mechanisms (e.g. routines, languages, stories, repositories, and models)’ (Kellogg et al., 2017, p. 24). The leadership of these organizations is, in both cities, based on their past and well proved capacity to bring actors together under the umbrella of preparing for large scale emergencies. As one actor explained to us, ‘they have a *‘soft intelligence’* from knowing from the past, in being able to pre-empt past risks in becoming issues, and are able to think about the wide impact. They also have a wide eye and know how individuals have been (acting) in the past.’ Moreover, they are at the center of creating negotiated agreements. However, this centrality which is given to them as a finality to their work and their existence gets sometimes overridden by a multitude of individual leaders which have the responsibility to carry out their own organizational finality. These coordinating agencies are faced with motivating, convincing and coopting other organizations in participating in the network. As many, no one is against virtue and participating organizations in the network usually agree on the principle and the importance of participating in the resilience network, knowing they will have to coordinate if there is an emergency. However, they do have

to carry out their usual daily work and projects, and participating in a resilience network is rarely part of their central finality. So the leadership 'pressure' is on the coordinating organization such as the LRGroup or the CSC.

Setting resilience on the political agenda and having it followed through is important, it is however not enough to help sustain the development of the resilience network. These organizations might not be well situated in the hierarchy of their own individual city to sustain the pressure on the political agenda (Therrien et.al, revise and resubmit). They often benefit, unfortunately, from focussing events such as floods, or terrorist attacks to maintain and convince of the importance of their organization and developing a resilience network. However, this often fades away after a few months following the event(s).

## **6. Conclusion**

Through our analysis of collaborative network governance and institutional work mechanisms with the study of London and Montreal we are contributing to the growing literature on resilience governance literature that engages with finding solutions to complex problems.

Organizations, and more specifically at municipal the level, are faced with tackling the implementation of climate change and resilience. However, as we underlined, even if these organizations have determined a resilience policy, the actual mechanisms of implementation are often confronted with the usual public administration principles of conformity, specialisation and silos. Moreover, even if the organizations show a willingness to contribute to the general planning of a resilience strategy, they are confronted with individual institutional work mechanisms which impede the general capacity of a thorough collaborative network governance required by resilience.

Our analysis of the cities of London and Montreal also shows that even if both cities have different histories of resilience development, both exhibit similar issues of impeding mechanisms. What this also reveals is that both cities have focused the development of resilience on emergency management structures which are still evolving and facing coordination issues. It will therefore become important to take a closer look at the enabling and impeding mechanisms as both cities are migrating from not only managing shocks but also towards managing stresses.

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