

Resilience and the New Synthesis of Public Administration

A PGI Working Paper



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Edited by Jocelyne Bourgon P.C., O.C.
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PGI Working Paper

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Introduction

The *New Synthesis* (NS) Initiative was launched with the explicit purpose of exploring *the new frontiers of public administration* in order to provide practitioners with a mental map adapted to the challenges of serving in the 21st century.

Public administration has been lacking for some time a conceptual framework broad enough to integrate past practices of enduring value, flexible enough to embrace new and emerging practices and dynamic enough to co-evolve with the fast-changing landscape of the world we live in. The New Synthesis proposes a theoretical conceptual frame that is better aligned to the challenges of serving in a global, hyper-connected world and amid a technological revolution. A broader mental map and a dynamic approach to problem solving are needed to invent solutions to the complex challenges government are facing in practice.

The NS Initiative was launched in 2009. It is a collaborative international research initiative. It was developed in partnership with distinguished academics from a variety of disciplines and senior public sector leaders from countries with different governing systems operating in very different contexts, cultures and circumstances. Seeking insights from theory and practice, and testing ideas in a diversity of environment area a trade-mark of the New Synthesis Initiative.

Government, public institutions and organisations are called upon to serve in a context characterised by complexity, high uncertainty, hyper-connectivity and an increasingly fragile biosphere. These factors and others are transforming the economic, social, technological, environmental and political spheres of life in society. The pace of change is increasing and there is every reason to believe that the velocity of change will continue to accelerate.

Governments are called upon to steer their society through an unprecedented process of change. They must build the capacity of society to adapt to a fast-changing landscape and prosper in yet unforeseen circumstances.

The NS initiative has been underway for

the better part of ten years. The results to date reflect the commitment and the interest of country partners and collaborators to rethink public administration from new bases going beyond public and constitutional laws, political sciences and conventional public administration principles inherited from a prior time and including insights from complexity theory, system theory, living systems, behavioral economics, etc. The NS Initiative work is now entering a new phase that will build on the work to date. A brief summary of the work to date is presented thereafter.

The First Phase of the NS Initiative (2009-2011):

The initial phase generated a conceptual framework that brings together the role of government, citizens and society in a dynamic and interactive governing system. It is significantly different from conventional public administration thinking. It posits that public results entail a shared responsibility and require a collective effort. *Governing is a search for balance to harness* the contribution of the public, private, and civic spheres. Ultimately the State is responsible to ensure that the overall balance serves the interests of society. The NS Framework:

- *Expands* the range of options open to government;
- *Improves* the likelihood of success of government actions and interventions;
- *Brings* special attention to society's resilience and adaptive capacity; and,
- *Encourages* system thinking and collective problem solving.

The Second Phase of the NS Initiative (2011-2017):

The first phase explored “*what is different about serving in the 21st century?*” Building on prior work and with a new conceptual frame in hand, the New Synthesis moved to a new phase. The second phase focused on “*what can we do to ensure that the capacity of government to invent solutions will keep pace with the increasing complexity of the problems we are facing as a society?*”

The second phase tested the NS frame in practice. Based on the work of 1,000 practitioners in a diversity of contexts and circumstances, this phase confirmed the importance of a broader mental map and of dynamic system thinking to invent solutions and encourage collective problem solving. More than ever, governing in the 21st century is a *process of invention and transformation*; it is not a process of replication. Doing more of the same, even if done better, will be insufficient to generate solutions to the public challenges ahead. The second phase generated the *NS exploratory cycle*. Based on the observation of public sector leaders using the NS Framework to address problems they were facing in practice, this work documented *how to do consciously and systematically what some leaders do instinctively or by experience* to invent

solutions to the complex challenges they are facing in practice.

The second phase revealed areas where further work was needed. It underscored the need to explore more deeply the importance of *civic results* and of the essential role people play in building the collective capacity to adapt to a fast-changing landscape. People, their families, and communities generate the results needed to navigate through an unprecedented period of change. Civic results include; but, are not limited to: Civic capacity: The capacity of people, families and communities to take charge of issues and to initiate actions with others and with government in a manner that addresses their concerns and promote the overall interest of society.

Civic will: The will to deploy capabilities to build and share a better future together and to contribute to collective problem-solving.

Civic spirit: The will to build and share a better future as member of a broader human community.

Civic values (and norms): Shared values and normative behaviours that contribute to harmonious living and making society governable.

The Third Phase of the NS Initiative:

The objective of the third phase is to undertake a deep dive into civic results and how they affect the overall functioning of a governing system. The aim of the research is to generate *a coherent and cogent synthesis of ideas and principles about what government can do to accelerate the adaptive capacity and resilience of society and the capacity for collective problem solving*.

- What can government do to enhance the *collective capacity* of society to invent and share a better future together?
- What can government do to ensure that the *adaptive capacity* of society will keep pace with the increasing velocity of change?
- What can government do to enhance the *resilience of society* to adapt, evolve and prosper in unforeseen and unpredictable circumstances?
- What must be done to ensure that public institutions have the *capabilities* to successfully steer society through an unprecedented period of change?

The New Synthesis and the Concept of Resilience:

The NS language around civic results is somewhat different from what is generally found in the literature. This makes the research more difficult at times, but it also signals that the NS Initiative transforms and “invents” concepts to help bridge the gaps between academic findings and the reality faced by practitioners.

The NS Framework is the frame of reference for the third phase. This phase of the NS Initiative focusses on the part of the NS Framework where civic results take form, build a deep pool of good will and where civic capacity and civic will are converted into collective actions that propel society forward.

The interrelationship between public results (the capacity to generate results of increasing value for society) and civic results (the capacity to build and harness the power of citizens, families, and

communities as public value creators) is at the heart of the research work in the third phase. At the highest level, public results include: a better future, improved human conditions, and a sustainable human trajectory. The articulation of the desired societal results is contextual and circumstantial. It is forged through a political process that is shaped by the interrelationships between government, citizens, and multiple forces in society. Civic results provide the glue that binds society together and the energy to propel society forward.

Resilience provides an important anchor for the 2019 research work. It is central to the NS governing system and to what government can do to accelerate the adaptive capacity and the resilience of society.

This working paper will:

- update the NS concept of resilience that was put forward in 2011 by reviewing recent literature and findings;
- explore concepts about collective capacity building and collective problem solving at local and national levels;
- identify factors that may accelerate the adaptive capacity of society to technological changes, the changing nature of work, environmental changes and other disturbances; and,
- learn from practice and identify insights from government experiences in various countries that contribute to capacity building, collective problem solving and resilience.

1. Resilience and the New Synthesis of Public Administration

The importance of resilience as a concept in public administration emerged during the first phase of the NS Initiative during 2009-2011. The literature on resilience at that time was mainly associated to the fields of biology, ecology, psychology and sociology.

The NS concept of resilience applied to public administration took shape over five international roundtables, with the most significant being the one held in The Netherlands. It was further enriched by the contribution of the Australian delegation that shared a case study on bush fire that highlighted the importance of community resilience.

Resilience is one of the four interacting sub-systems that make the NS Framework. It refers to the *capacity of a system to absorb disturbances while retaining its essential functionality*.¹ The NS definition expanded the concept to include the capacity to *adapt, invent, and co-evolve with a fast-changing context and environments*.²

Abrupt changes and crises provide an opportunity to witness or test the resilience of a society at various levels and in various circumstances. Resilient society with a strong adaptive capacity can absorb disturbances, reinvent themselves and evolve while others with insufficient adaptability will struggle to recover and adapt. Resilience naturally exists in nature, people and society.³ But, it can be enhanced or weakened.

2009 Roundtable in the Netherlands⁴

Hosted by the Ministry of the Interior and Kingdom relations of The Netherlands, participants were invited to explore the implications of the concept of “resilience” applied to public administration.

The backdrop to the discussion was the fact that The Dutch government had been taking on an expanding range of responsibilities since the 1960s. There was a concern that this approach may lead to making people more dependent on government and thereby reducing their natural resilience and ability to take responsibility for themselves. The roundtable discussion benefited from the contribution of Ann Masten, Paul Frissen, Martijn van der Steen, Geert Teisman, and other scholars sharing their work in sociology, child psychology, and public administration.

A consensus emerged during the roundtable that although governments cannot create resilience, they can nurture it and mindfully avoid undermining the natural resilience of individuals, communities and society. Building resilience requires a delicate balance between government actions and individual and communities’ responsibilities. The participants identified *nine key ideas*⁵ that could be used to guide government actions for nurturing resilience:

1. *Frame missions as collective enterprises* (i.e., emphasize the

¹ Walker, Brian, and David Salt. 2006. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Washington: Island Press.

² Bourgon, Jocelyne. 2011. *A New Synthesis of Public Administration*. Kingston: McGill-Queen’s University Press, 80.

³ Bourgon, *A New Synthesis of Public Administration*, 83.

⁴ For more details, see: Bourgon, *A New Synthesis of Public Administration*, 86 and 262.

⁵ Bourgon, *A New Synthesis of Public Administration*, 278-280.

positive desired outcomes rather than the problems. Focus on strengths over weaknesses.)

2. *Make “smart” interventions* (government interventions should build on existing strengths.)

3. *Take advantage of windows of opportunity* (Use periods of adversity and crisis for renewal by nurturing innovation and social innovators.)

4. *Foster adaptation*⁶ (Cultivate the resilience that is already out there⁷.) There are three basic approaches to cultivate resilience.

- a. Risk-focused (e.g., mitigating.)
- b. Asset-focused (e.g., building on strengths.)
- c. Process-focused (e.g., mobilising people and relationships.)

5. *Experiment on small scales* (e.g., Balance the need to foster adaptive capacity to continual change vs ensuring continuity and stability. Small scale changes reduce the risk of undesirable effect cascading across the larger system)

6. *Support social innovation* (e.g., Governments can encourage social innovation by looking for innovators, connecting them, setting conducive conditions, and helping them scale up successful innovations.)

7. *Use participatory processes* (e.g., Participation builds society’s capacity to address public issues in ways that meet the needs of the people most affected. Government must look for ways that allow citizens and communities to participate in defining the nature of the issues and identifying solutions.)

8. *Slow down to go further* (e.g. Citizens need time and space to find their own answers and for solutions to emerge. Be careful about rushed interventions that seek perfect solutions over ‘small wins’ that yield better results over time.)

9. *Build social capital* (e.g., Bonding and bridging social capital are important for resilience.)

- a. Bonding social capital encourage solidarity and trust to weather adversity
- b. Bridging social capital builds networks of relationships among people, families and communities that provide diversity, variety, and novelty to improve responsiveness in the face of surprises. This requires social tolerance for diversity.

*The Australia Bush Fire Case Study*⁸

The study of resilience has traditionally received limited attention in public

⁶ See: Bourgon, *A New Synthesis of Public Administration*, 279.

⁷ Berkes, F, and N J Turner. 2006. “Knowledge, learning and the evolution of conservation practice for social-ecological system resilience.” *Human Ecology* 34: 479-494. doi:10.1007/s10745-006-9008-2.

According to Berkes and Turner, this plays a little into the importance of a governance system and flexibility. For example, multilevel governance systems in which decision-making is not focused at the top; but, is shared by various levels as appropriate. This could include networks, partnerships or polycentric systems.

⁸ For a full description of the case study, see: Bourgon, *A New Synthesis of Public Administration*, 197-211.

administration.⁹ The emphasis was historically placed on compliance and controls to ensure that resources are tightly aligned with government priorities and to account for the use of taxpayers' money and the exercise of authority.

The discussion of the Australian bushfire case study played an important role in the NS Initiative. It revealed that government can achieve the desired policy outcome and build community resilience *at the same time*. The challenge for public sector leaders is to explore how to achieve better public results and better civic results and to explore the implications that various choices entail for society. The discussion revealed the importance of *community resilience* and how it can be harnessed to achieve better public results.

Australia Bushfire - State of Victoria

In 2009, the state of Victoria (Australia) was ravaged by devastating fires with over a hundred casualties, thousands of properties damaged, and over four-hundred-thousand hectares of forests destroyed.¹⁰ It was the most important fire that Australia had experienced; thousands of people had lost everything and were homeless as a result.

The State government established the Victorian Bushfire Reconstruction and Recovery Authority (VBRRA) with a very broad mandate to co-ordinate the restoration and recovery of affected regions and communities. There were many aspects to their work ranging from crisis management (fire management, feeding and housing victims, reconstruction work, demolishing unsafe structures, removing rubbles, etc.) and rehabilitation (helping people recover and getting on with their life). The easiest part was crisis management and cleaning up the sites. The State Government is well equipped to deal with emergency situations. They were quick to retain additional external capacity wherever it was needed. Community rebuilding and rehabilitation, on the other hand, are a much more complex undertaking.

The VBRRA focussed on *community rebuilding*. The approach was to listen to people affected, giving them time to come up with ideas of their own to guide the reconstruction phase. In the process, a community of neighbours became a closely knitted community taking charge of rebuilding their life.

Based on the Roundtables in The Hague in March, Ottawa in May, Singapore in September and London where the Bush fire case was discussed and the research on human development and well-being available at the time¹¹, the participants identified six key principles that could guide government actions to encourage resilience:

1. Do no harm (e.g., avoid actions that erode the natural resilience and create dependencies);
2. Build on strength (e.g., recognise that resilience is built by doing –leads to the need

⁹ See: Borins, S. 2008. *Innovations in Government: Research, Recognition, and Replication*. Report, Washington: Brookings Institute Press; and, Pfeffer, M. 2009. So what's new? Innovation versus novelty in human services delivery. Policy Brief, Melbourne: Australia and New Zealand School of Government, 10. <https://trove.nla.gov.au/version/48434302>.

¹⁰ Bourgon, A *New Synthesis of Public Administration*, 82.

¹¹ Masten, A, and M O'Dougherty-Wright. 2010. "Resilience over the lifespan: Developmental perspectives on resistance, recovery, and transformation." In *Handbook of adult resilience*, by J W Reich, A J Zautra and J Stuart Hall, 213-237. New York: Guilford.

to deliberately enroll active participation of people directly concerned);

3. Go fast, go slow (e.g., engagement may take time; but it leads to results that exceed the capacity of government acting alone);

4. Design interventions for collaboration (e.g., shift the focus of attention from what government can do to what can be achieved collectively);

5. Generate a narrative of hope (e.g., focus on the positive and the desired societal outcome rather than the negative manifestation of the problem to be addressed);

6. Embrace diversity (e.g. resilience needs a diversity of approaches and perspectives).

Building Resilience at Multiple Levels

Bourgon argues that a resilient society cannot be achieved without self-resilient individuals, resilient communities and the capacity for collective problem-solving. Resilience must therefore be built at multiple levels.

Self-reliant individuals display several characteristics. They have a good grasp of reality, neither unwarranted optimism nor negativism. They believe life is worth living and can be improved. They use of tools at their disposal and can improvise. They are robust under stress and can adapt in response to changing circumstances. Factors contributing to resilient individuals include caring, and supportive relationships within and outside the family that offer reassurance and help bolster a person's resilience.

Resilient communities have the capacity and the will to deploy these capabilities to address issues of concerned to them. They

come together when need be. They can rise above differences and find ways to converge towards a common path. They are active partners with government. They are attuned to the risks faced by their community and are actively looking for ways to overcome them whether they are related to environmental, economic or safety issues.

Resilience cannot be achieved by individuals on their own, nor can it be achieved by a community or society without building resilience at the individual level. Resilient communities require a critical mass of people with motivation, skills, and confidence to act with others. These people have solid, durable relationships in the community at multiple levels that bind the public, private and civic spheres together. These assets can be put to the service of the community when needed or mobilised to respond to challenges to shape solutions.

Community resilience is built and accumulated over time and manifests itself in the capacity of communities to take charge of issues of interest and to find solutions to the challenges they face with or without government support.

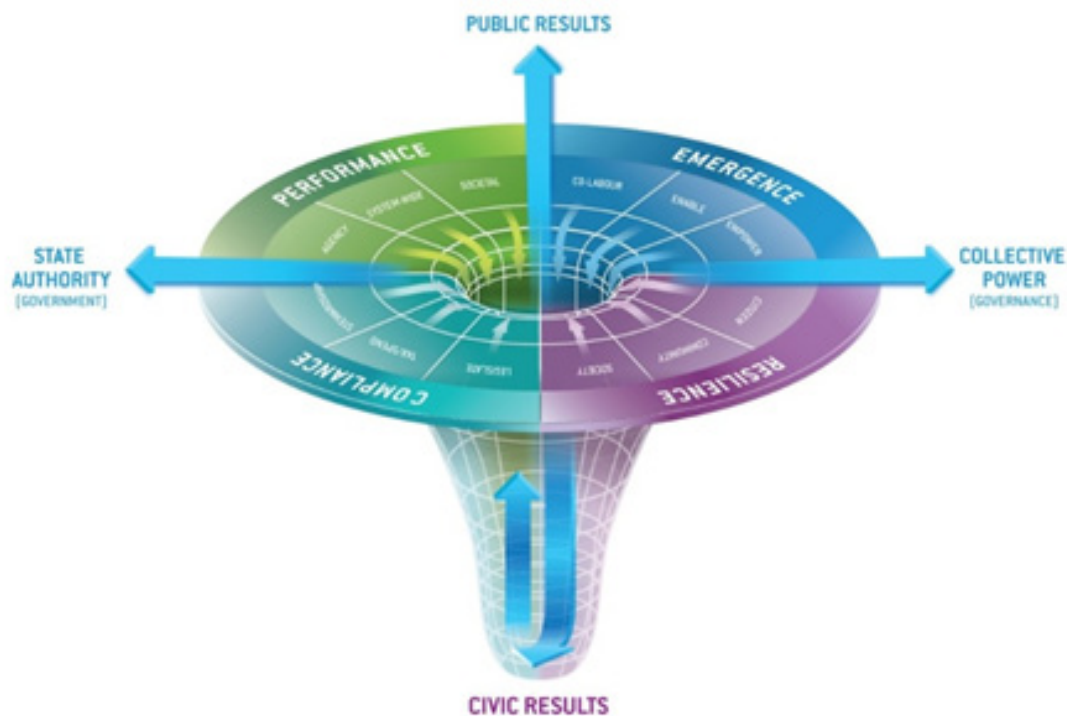
Resilient society displays the capacity to *absorb* shocks and disturbances, to *adapt* to changing circumstances and to *transform* the current reality to generate a more desirable future in order to prosper in the future even in unpredictable circumstances. Building the resilience of society is an ongoing process; too much government control may erode societal capacity and increase dependency, not enough dissipates energy without much progress. Government contributes to building residence and collective capabilities in many ways. Designing policies and programs to ensure that people can play an active role, co-create solutions and co-produce results are

examples of measures that contribute to building resilience.

The New Synthesis of Public Administration Fieldbook 2012-2017

The New Synthesis of Public Administration Fieldbook was published in 2017. It is based on the work done by 1,000 public sector leaders engage in an exploratory process to invent solutions to public policy challenges.¹²

NS considers resilience as the ultimate reality check of a well performing society. It requires skilful government stewardship, an innovative public sector, a robust civil society and collective problem-solving capabilities at several levels. It provides the impetus to adapt to changing needs and circumstances and to generate sustainable futures.¹³



Societal resilience reveals the capacity to adapt, absorb disturbances, and prosper in the face of unforeseen or unpredictable circumstances. It requires well developed civic capacities and the civic will to deploy these capabilities to advance the collective interest. Resilience is one of four interacting sub-systems; the others are compliance, performance, and emergence. At the end of the day everything must fit together.

- The state must be able to govern (compliance).
- The administrative apparatus must be able to get things done (performance).
- Government must be able to harness the collective power of society to invent solutions to the problems of society and to steer society through an ongoing process of change (emergence.)

¹² Bourgon, Jocelyne. 2017. *The New Synthesis of Public Administration Fieldbook*. Copenhagen: Dansk Psykologisk Forlag.

¹³ Bourgon. *The New Synthesis of Public Administration Fieldbook*.

- Government must ensure that the overall balance (public, private, civic) promotes the overall interest of society and charts a pathway towards a society that will enjoy a better future and improved human condition (resilience).

Governing is a dynamic, interactive and iterative process of invention. There is not one right way but a broad continuum of options to invent solutions to the problems that stem from living in society.

Such a dynamic view of the role of government and citizens departs from the conventional view that saw people as subservient to government, where people are expected to pay taxes, obey the law, and participate in elections without significant role in policy decision-making. This view crowds out the contribution of citizens and erodes the natural resilience of society.¹⁴

2. What is New about Resilience in the Literature today?

This section reviews recent academic literature about resilience in various domains. The purpose is to identify new ideas that may enrich the New Synthesis of public administration and insights relevant to public sector leaders committed to building resilience in society and in public sector organisations.

There is an abundant literature about city and community resilience and much less documentation about building individual and societal resilience.

Literature from Urban Planning (Regional Resilience)

The John D. and Catherine T. MacArthur Foundation (MacArthur Foundation)¹⁵ supported over the years the work of many

researchers including Kathryn Foster, Todd Swanstrom,¹⁶ Bill Barnes, Rolf Pendall,¹⁷ Margaret M. Cowell, who explored the concept of regional resilience

Some of these scholars later built on the work of the MacArthur Foundation to flesh out a more comprehensive understanding of regional resilience.

K. Foster¹⁸ proposed that resilience refers to a region's capacity for anticipation, preparedness, responsiveness, and recovery from a disturbance. To explore

¹⁴ Ostrom, Elinor. 2000. "Crowding out Citizenship." *Scandinavian Political Studies* 23 (1): 3-16. doi:10.1111/1467-9477.00028.

¹⁵ The MacArthur Foundation is an institute that supports research on pressing global social challenges like over-incarceration, global climate change, nuclear risk, and significantly increasing financial capital for the social sector. See: <https://www.macfound.org/networks/research-network-on-building-resilient-regions/>

¹⁶ Swanstrom, T. 2008. *Regional Resilience: A Critical Examination of the Ecological Framework*, Working Paper 2008-7.

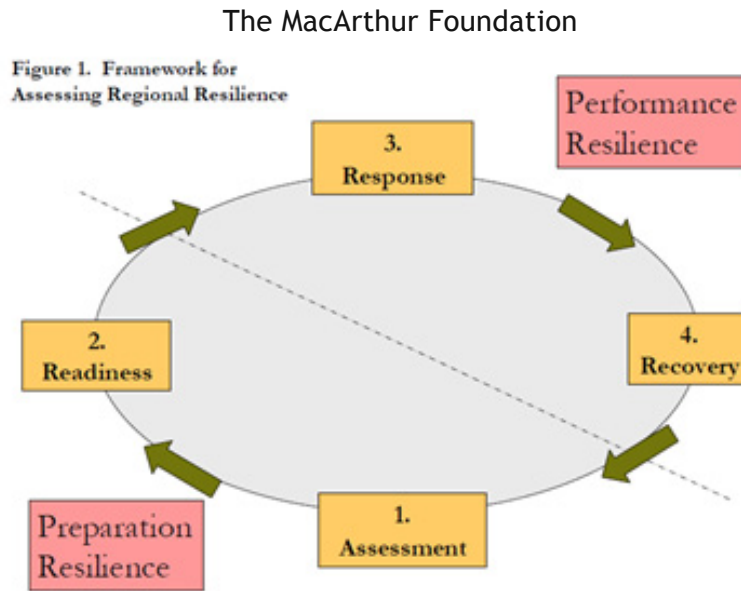
MacArthur Foundation Research Network on Building Resilient Regions, Berkeley: University of California

¹⁷ Pendall, R, K Foster, and M Cowell. 2010. "Resilience and regions: building understanding of the metaphor." *Cambridge Journal of Regions, Economy and Society* 3 (1): 71-84. doi:10.1093/cjres/rsp028.

¹⁸ Foster, Kathryn A. 2006. *A Case Study Approach to Understanding Regional Resilience*. Working Paper, Fort Worth: Institute of Urban and Regional Development; and, Foster, Kathryn A. 2007. "Snapping back: What makes regions resilient?" *National Civic Review* 96 (3): 27-29. doi:10.1002/ncr.184.

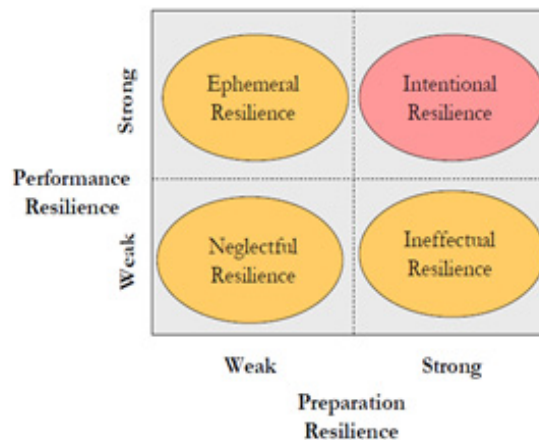
how resilience works in a complex metropolitan region, Foster developed a framework to assess regional resilience (figure 1). This framework posits that there are two key phases to building resilience: *preparation resilience* (comprised of two stages of regional assessment and readiness), and *performance resilience* (comprised of two stages of event response and recovery).

The various phases are ongoing and overlapping. They cover multiple dimensions including physical infrastructure, social systems and governance.



A key idea is the recognition that a region could perform poorly at some level and well in others.¹⁹ The goal is to achieve a level of *intentional resilience* that implies a high state of readiness and a strong capacity in practice (see figure 2).

Fig. 2. Regional Resilience Matrix



¹⁹ Foster, 2006. *A Case Study Approach to Understanding Regional Resilience*.

According to Foster, a region might get high marks for preparation resilience, carefully coordinating information gathering, appropriately assessing and communicating vulnerabilities and strengths, mobilizing and empowering actors and organizations to address system gaps or weaknesses, and training and drilling to address potential stresses and crises. However, the region may get low marks in performance resilience, responding relatively poorly and failing to recover from an event or condition. Such an outcome may occur if a region is overwhelmed by factors beyond its control or if its capacities are simply weak. In contrast, a region might have weak performance resilience, failing to assess conditions and consciously plug gaps, yet still exhibit high performance resilience relative to other places faced with similar circumstances.

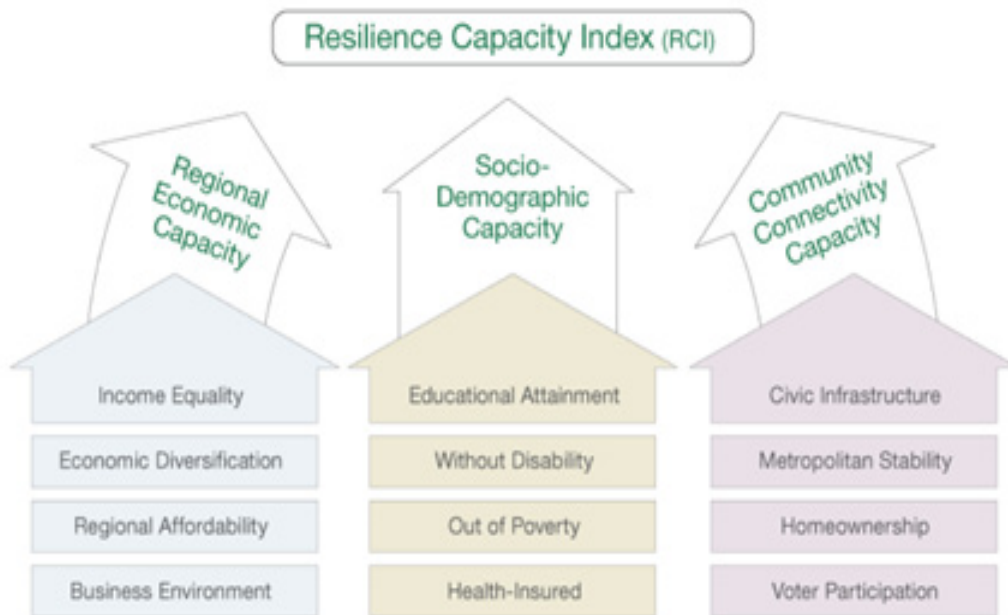
Regions with ephemeral resilience may respond and recover well despite their lack of assessment and preparation. These regions have been fortunate to withstand shocks in the past; but cannot expect to perform as well in the future without deliberate attention to assessment and readiness preparation. Regions with *ineffectual resilience* are those that deliberately assess vulnerabilities and strengths and succeed in readying themselves for high-consequence risks; but were ineffective in responding to and recovering from traumas when they came. Finally, regions that fail to prepare and subsequently perform poorly in the face of challenges display *neglectful resilience*.

Specific criteria are associated with each stage of the resilience cycle. They more readily apply to instances of shocks and disturbances; but, they are also relevant for challenges of a more general nature such as economic decline, demographic shifts or environmental evolution.²⁰

Kathryn Foster

Recognising that measuring regional resilience as a post-stress phenomenon is difficult, Foster proposed instead an assessment of a region’s *pre-stress capacity* to unknown future stresses. The Resilience Capacity Index (RCI) is a single statistic summarizing a region’s status on twelve factors hypothesized to influence the ability of a region to bounce back from a future unknown stress. The index permits comparisons across metropolitan regions and identification of strong and weak conditions relative to other metropolitan regions (*Figure 3*).

Figure 3: Resilience Capacity Index



The index includes multiple factors:

²⁰ Foster, A Case Study Approach to Understanding Regional Resilience, 17-20.

- *Regional Economic indicators* capture concepts of industrial diversification, business dynamics and regional affordability measured as a product of housing costs and income levels, and income equality;
- *Socio-Demographic indicators* capture concepts of poverty, disability, educational attainment and the proportion of the region's residents with health insurance; and,
- *Community Connectivity indicators* capture how familiar with and civically active a region's residents are as expressed by voter participation rates, homeownership, organizational density, and metropolitan stability measured by resident tenure within the region.

Pendall, Foster, and Cowell

Pendall, Foster, and Cowell conducted a literature review of the concept of resilience across several fields including ecology, psychology, economics and disaster studies. They were particularly interested in the role of governance in shaping regional outcomes. They identified two forms of resilience analysis: equilibrium analysis where a system is expected to return to its "normal" state and complex adaptive system (CAS) analysis that emphasises the capacity of a system to continually adjust and achieve "new equilibriums". This is particularly relevant in the case of human living systems; people learn, and human interventions can lead cities and regions towards "new equilibriums" leading to a different "future".

While the choice of methodologies depends on the challenge under review, complex adaptive system analysis is better suited

for the resilience analysis of human systems including cities and regions. That said, regional resilience analysis is always challenging. The first challenge is to set boundaries, the second is to set timelines since some aspects will evolve at different speeds.

The authors made several important observations.

- The relevance to regions of equilibrium concepts depends on the nature of the challenge (immediate shock or slow burn challenge). And "a region merits a label of "resilient" only if it maintains or improves its performance on outcomes regardless of effort, process or starting point".²¹
- Regional resilience is highly complex and should be expected to vary by scale (local to global) and time (immediate to slow-moving)²² "to understand how regions, respond to challenges such as rapid growth, immigration, deindustrialization, aging or technological change, studies in the short term at small scales and in the long term at larger scales are both essential."²³
- "Each challenge, from responding to rapid influx of immigrants or suburbanization of poverty to addressing issues of prolonged economic decline or growth, may be associated with regional performance criteria outlining expectations for performance. Deriving such criteria and matrices to assess relative performance of regions in the face of a common challenge is an important exercise for future research".²⁴

²¹ Pendall, Foster, Cowell. "Resilience and regions: building understanding of the metaphor", 82-83.

²² Pendall, Foster, Cowell. "Resilience and regions: building understanding of the metaphor", 83.

²³ Pendall, Foster, Cowell. "Resilience and regions: building understanding of the metaphor", 83.

²⁴ Pendall, Foster, Cowell. "Resilience and regions: building understanding of the metaphor", 83.

The Rockefeller Foundation

By some estimates, close to 60 percent of the city infrastructure needed to serve the population projections has yet to be built or planned. Cities must take actions to accommodate trends in advance of needs; the decisions they make now and in the next several years will be difficult and costly to change later. City planners must take into account uncertainties related to climate change, the impact of new technology, etc.

The Rockefeller Foundation pioneered the *100 Resilient Cities* (100RC) initiative in 2013 to help cities build resilience to the physical, social, and economic challenges of the 21st century.²⁵ Cities in the 100RC network are provided with resources to develop a roadmap to resilience along 4 main pathways:

- *Financial and logistical guidance* for establishing an innovative new position in city government, a *Chief Resilience Officer*, who will lead the city's resilience efforts;
- *Expert support* for development of a robust Resilience Strategy;
- *Access to solutions*, service providers, and partners from the private, public and NGO sectors who can help them develop and implement their Resilience Strategies; and
- *Membership of a global network* of member cities who can learn from and help each other.

More than 1,000 cities have applied, and 100 cities have been selected to join the Network. They represent more than one-fifth of the world's urban population. More than 30 holistic Resilience Strategies have been created, which have outlined over 1,800 concrete actions and initiatives. One critical step a city could take is to hire a *Chief Resilience Officer* (CRO).²⁶ The CRO is an innovative position in city government that ideally reports directly to the city's chief executive and acts as the city's point person for resilience building, helping to coordinate all the city's resilience efforts.

The CROs help to solve two major problems cities are facing:

- Cities are complex systems made of an array of smaller, distinct actors like government agencies, local businesses, and offices of international organizations; and they often don't communicate or interact with one another as much as they should;
- The solutions cities develop are often not treated as scalable knowledge. Cities regularly solve problems that already have been addressed by other cities, when instead they could be modifying solutions and lessons learned in other cities, tailoring them to be more cost-efficient and effective.

²⁵ The Rockefeller Foundation. 2018. 100 Resilient Cities: Overview. Accessed December 10, 2018. <https://www.rockefellerfoundation.org/our-work/initiatives/100-resilient-cities>.

²⁶ Berkowitz, Michael. 2015. *What a Chief Resilience Officer Does*. March 13. Accessed December 10, 2018. <http://100resilientcities.org/what-a-chief-resilience-officer-does>.

Chief Resilience Officer: The Municipality of Vejle

CROs help their cities make resilience efforts more impactful and collaborate externally to identify and integrate lessons other cities have learned. For instance, in Vejle, Denmark²⁷ the CRO, Jonas Kroustrup, is the day-to-day lead for the resilience work, reporting to the Mayor and City Chief Executive. Kroustrup works under the leadership of the Political Steering Committee, and with assistance from Municipality employees and external partners. Together with international organizations, they lead the strategy development process.

The development of Vejle's resilience strategy has been guided by a Steering Committee bringing together the core groups of decision-makers and stakeholders including: City Council, the Financial Committee and the Executive Board. Similarly, Kroustrup also worked with the Municipality's Innovation Committee (as an advisory committee), and other existing partnerships with the Educational Council, the Business Relations Committee and the Housing Strategic Steering Group. Finally, Kroustrup's work facilitates new knowledge, dialogue and cooperation through the Resilience Forum, where researchers and interest groups contribute to the development and understanding of resilience in Vejle.

The case of Medellín, Colombia

According to the Rockefeller Foundation, the city of Medellín faced enormous challenges (e.g., the inequality, social conflict, insecurity, intolerance, inadequate land management, and environmental challenges related to climate change).²⁸ In collaboration with 100 Resilient Cities, the Resilience Office brought together the knowledge and experience of multiple strategic planning exercises and efforts carried out in the city in recent decades.

These exercises have compiled the different voices of citizens; experts and leaders.

The Rockefeller Foundation sought to understand the interrelations between the shocks and stresses facing the city to convert these risks into challenges, and a driving force for change. The approach was structured around 4 *overarching goals* to achieve a resilient Medellín.

²⁷ The Rockefeller Foundation. 2018. *Resilient Vejle: Resilience Strategy*. Report, Vejle: Vejle Kommune.

²⁸ The Rockefeller Foundation. 2017. *Resilient Medellín: A strategy for our future*. Report, Medellín: Alcaldía de Medellín: Cuenta con vos.

The case of Medellín, Colombia

Equitable ²⁹	“Develop a more equitable and inclusive city and region with access to opportunities for all our citizens.” ³⁰
Safe and Peaceful ³¹	“Strengthen a more peaceful and socially cohesive society by promoting crime and violence prevention strategies and a culture of legality.” ³²
Sustainable and Risk-Prepared ³³	“Create a sustainable and risk-prepared city through greater management of land and infrastructure, sustainable transportation, environmental planning and adequate management of the natural resources and quality of life for its citizens.” ³⁴
Well-informed and Engaged ³⁵	“Foster a well-informed city through improved access to information and data management that facilitate the analysis and transfer of knowledge for strategic planning of the city and effective governance.” ³⁶

Since implementing these new strategies as part of its 2016-2019 developmental plan, how has Medellín changed and improved? According to a report by ACI Medellín,³⁷ the city has accomplished a number of changes with more to be completed by the 2019 deadline. A more detailed account is presented in Annex.

Insights and Implications for NS

Many of the concepts mentioned in this section are already reflected in the NS Initiative. However, several important insights are worth noting because they can improve the practice of public sector leaders interested in regional resilience:

- *Resilience is both preparation and action.* Regions require some level of preparation (self-assessment and readiness), and practical performance (response and recovery).
- *Building resilience is intentional.* The goal is to achieve a level of intentional readiness and an intentional capacity in practice.

- *Resilience exists at different points and at different scales.* Multiple elements interact to produce dynamic feedback that helps ensure that a region or a city is engaged in an ongoing process of adaptation. There are multiple possible “equilibriums” and several sub-optimal outcomes.

- *Diverse local consultations with clear objectives produce positive results.* In the case of Medellín, we see how exercises compiling different voices of citizens, experts, and leaders can play a strong role in providing unique insights about problematic stresses and shocks. The Government rallied people around 4

²⁹ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 8.

³⁰ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 15.

³¹ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 9.

³² The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 15.

³³ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 9.

³⁴ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 15.

³⁵ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 9.

³⁶ The Rockefeller Foundation. *Resilient Medellin: A strategy for our future*, 15.

³⁷ ACI Medellín. 2018. “Medellín, on the Path of Sustainability.” *LINK 6* (6): 82. <https://acimedellin.org/wp-content/uploads/publicaciones/revista-link-2018-baja.pdf>

goals (Equitable, Safe and Peaceful, Sustainable and Risk Prepared, and Well-informed and Engaged), and people responded by turning difficulties into new opportunities by helping government solve problems.

Literature from Psychology (Individual Resilience)

The American Psychological Association defines resilience as “*the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress – such as family and relationship problems, serious health problems or workplace and financial stressors. It means “bouncing back” from difficult experiences.*”³⁸

Research has shown that resilience is ubiquitous; people commonly demonstrate resilience. This does not mean that a person does not face difficulties or manifest distress. Emotional pain and sadness are common in people who have suffered adversity or trauma in their lives. The road to resilience may involve considerable emotional distress. Resilience is not a trait that people either have or do not have. It involves behaviors, thoughts and actions that *can be learned and developed* in anyone.

Several factors contribute to individual

resilience. Several studies have shown that the primary factor in developing individual resilience is having caring and supportive relationships within and outside the family. Relationships of love and trust provide role models and offer encouragement and reassurance that bolster a person’s resilience. Several additional factors are known to be associated with resilience, including:

- The capacity to make realistic plans and take steps to carry them out;
- A positive view of oneself and confidence in one’s strengths and abilities;
- Skills in communication and problem solving; and,
- The capacity to manage strong feelings and impulses.³⁹

These abilities may develop over time.⁴⁰ *Khanlou and Wray* view resilience as a *process* and a *continuum*. They argue that resilience is a global concept with *multiple* dimensions.⁴¹ Individual, family, social and environmental factors influence resilience. They emphasise the importance of social determinants and mental health. Government programs and services to promote resilience should be complementary to public health measures focussing on the social determinants of health.

³⁸ American Psychological Association. n.d. The Road to Resilience. Accessed December 11, 2018. <https://www.apa.org/helpcenter/road-resilience.aspx>; and, Truffino, Javier Cabanyes. 2010. “Resilience: An approach to the concept.” *Rev Psiquiatr Salud Ment (Barc. 3 (4): 145-151.*

According to Truffino, ‘bounce back’ refers to capacity to recover from extremes of trauma and stress, which reflects a dynamic confluence of factors that promotes positive adaptation despite exposure to adverse life experiences.

³⁹ Atkinson, P A, C R Martin, and J Rankin. 2009. “Resilience Revisited.” *Journal of Psychiatric and Mental Health Nursing* 16 (2): 137-145. doi:10.1111/j.1365-2850.2008.01341.x.

According to Atkinson, Martin, and Rankin, this can mean constructing or enhancing means to promote mental health and develop socio-emotional competence

⁴⁰ Le Cornu, R. 2009. “Building Resilience in Pre-Service Teacher.” *Teaching and Teacher Education* (25): 717-723. doi:10.1016/j.tate.2008.11.016.

In education, according to Le Cornu, resilience is studied both from the student (their profile and possible development strategies) and teacher perspective (their own capacity for resilience and the attitudes and strategies for developing resilience among their students)

⁴¹ Khanlou, Nazilla, and Ron Wray. 2014. “A Whole Community Approach toward Child and Youth Resilience Promotion: A Review of Resilience Literature.” *International Journal of Mental Health and Addiction* 12 (1): 64-79. Accessed 12 22, 2018. <https://link.springer.com/article/10.1007/s11469-013-9470-1>.

A *whole community approach* to resilience is proposed as a way of closing policy gaps. Several existing policies do not consider (and take advantage of) the relationships between individual, family, community, school (why school and not workplace?) and society in a longitudinal process. Working across multiple dimensions is needed to foster the development of resilience. For instance, community interventions, such as home visiting or early child development programs, improve life chances for disadvantaged and marginalized children. These interventions are generally not well documented or guided by a concern to build child resilience. The authors argue that most initiatives tend to revolve within a *single domain* while a holistic approach would be needed to build resilience.

For the most part, individual resilience initiatives revolve around the school. The emergence of a “whole school” approach reveals an increasing awareness that child resilience requires a partnership beyond the boundaries of the school. Similarly, a whole community approach is one in which the approach to family, school environment and community is integrated in the mission of fostering resilience through collaborative partnership and engagement (see figure below).⁴²

Figure 4: Whole Community Approach

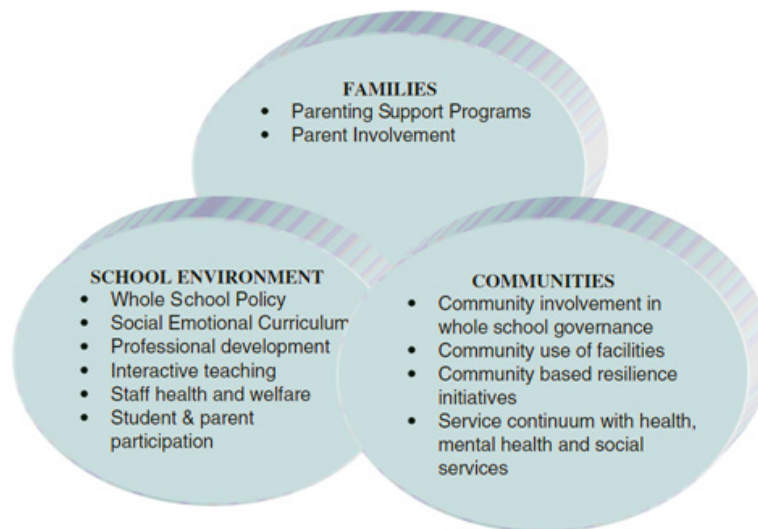


Figure 4 illustrates the importance of an integrated approach to developing individual resilience. Promoting resilience through a *whole community* approach is not about new resources and funding, nor does it ignore the wider determinants of public health. Instead, the approach is about using local initiatives as a means of stimulating a wider transformation process that brings together community engagement, families and schools in the broader context of a transformation of the determinants of population health. Psychological resilience has sometimes

been conceptualized as a *personality trait as well as a process*.⁴³ Fletcher and Sarkar found that resilience consists of various factors that promote personal assets and protect individuals from negative stressors. Recovery and coping are distinct from resilience. Resilience as a personality trait influences an individual’s appraisal of stressors, the response to emotions, and the selection of coping strategies. In their work about the psychological resilience in Olympic champions, Fletcher and Sarkar explored the experiences of 12 athletes withstanding pressure during their sporting

⁴² Khanlou and Wray, 75.

⁴³ Fletcher, D, and M Sarkar. 2013. “Psychological Resilience: A Review and Critique of Definitions, Concepts and Theory.” *European Psychologist* 18 (1): 12-23. doi:10.1027/1016-9040/a000124.

careers.⁴⁴ They discovered that psychological factors (e.g., relating to a positive personality, motivation, confidence, focus, and perceived social support) protect athletes from the negative effect of stressors by influencing their appraisal of the challenges.⁴⁵ An environment that stimulates and fosters positive psychological factors encourages resilience. Fletcher and Sarkar argued that psychological resilience can be enhanced through educational programs and training (e.g., evaluating personal assumptions, minimizing catastrophic thinking, challenging counterproductive beliefs, and cognitive restructuring).

Insights and Implications for NS

Many of the points mentioned above are consistent with NS work on self-reliance and individual resilience. For instance, Bourgon notes that “resilient individuals have a number of characteristics. They display a solid grounding, neither unwarranted optimism nor negativism. They believe that life is worth living and can be improved.”⁴⁶ One’s relationships and environment play a key role in building individual resilience.

The most recent literature on individual resilience brings forward important insights:

- The relationship between individual *resilience*, *social determinants* of health and *mental health* offers

important insights to rethinking social policies form a resilience perspective. This would be particularly significant for health, education and social service sectors.

- A “whole community perspective” would encourage a multidimensional approach to collective problem solving and encourage a local focus for actively engaging families, communities and public instruments such as schools, hospitals, clinics⁴⁷ or social service providers.
- The idea of resilience as a *trait* and *process* helps to avoid a false dichotomy -that people are or are not resilient. Resilience is a dynamic capacity that can be built or eroded over time. Although this view makes it hard to measure resilience, this difficulty can be overcome by using a combination of performance indicators including wellness, health and social indicators as well as individual wellness indicators.

Literature on Ecosystems (the Resilience of Human Systems)

Ecology brings a dynamic system perspective to society and human systems. Developed more recently by psychologists,

⁴⁴ Fletcher, D, and M Sarkar. 2012. “A grounded theory of psychological resilience in Olympic champions.” *Psychology of Sport and Exercise* 13 (5): 669-678. doi:10.1016/j.psychsport.2012.04.007.

⁴⁵ Fletcher and Sarkar. “A grounded theory of psychological resilience in Olympic champions.”, 673.

According to Fletcher and Sarkar, the concept meta-cognition “...is conceived in three slightly different ways depending on the stage of the gold medalists’ sporting journeys: firstly, Olympic champions were self-aware of their goals when they were confronted with specific situations (i.e., meta-cognitive knowledge) especially in the initial phase of their lives. Secondly, as the previous quote illustrated, the world’s best athletes used specific psychological strategies (i.e., goal-setting, imagery, self-talk, relaxation and activation) to control their cognitions and images (i.e., meta-cognitive skills) during the pinnacle of their careers. Thirdly, toward the latter stages of their sporting journeys, they accepted that their experience had the potential to have a facilitative or debilitating influence on their sport performance (i.e., meta-cognitive experience).”

⁴⁶ Bourgon. *A New Synthesis of Public Administration*, 86.

⁴⁷ Masten, A, and M O’Dougherty-Wright. 2010. “Resilience over the lifespan: Developmental perspectives on resistance, recovery, and transformation.” In *Handbook of adult resilience*, by J W Reich, A J Zautra and J Stuart Hall, 213-237. New York: Guilford.

this frame offers several different insights regarding the earlier roots of the concept as it relates to environmental systems.

Allentown and Youngstown

One study using a system thinking for the analysis of human systems is the work of Sean Safford on two Rust Belt cities: Allentown, Pennsylvania and Youngstown, Ohio. The *Safford's study*⁴⁸ analysed the adaptation of two cities in response to deindustrialization. The study compared *Allentown* and *Youngstown*. It *showed* that in the case of human systems social, capital accumulation may matter less than its configuration.

Allentown

Allentown had a structure of civic relations that facilitated actions across socio-political and economic spheres. This, in turn, contributed to the capacity to respond to a traumatic loss of industry. Allentown's civic organizations played a key role in shaping the city's post-industrial trajectory. According to Safford, "serving on the boards of organizations like the Boy Scouts and local universities provided local economic actors who did not have intersecting economic interests a forum in which to develop, enact and reproduce community-oriented identities and values."⁴⁹ For instance, the staff for the Lehigh Valley Partnership (members are CEOs of major local companies), as well as of the Lehigh Valley Industrial Parks, were recruited from among the ranks of Boy Scout staff.

Youngstown

Youngstown, for its part, had social networks that were ingrown and tied to sunset industries. This encouraged a continuing commitment to declining industries. Organizations like, the Youngstown Garden Club were populated by the spouses of the business elite. Members of the same families served in most of the local clubs and organizations. By the 1970s, the city's economic and social community organisations were populated by the third and fourth generations of the city's original elite. According to Safford, "those ties had grown increasingly brittle. Families maintained their names and faces in the community through such memberships, but their time and effort were spent outside of it."⁵⁰

An *ecosystem* perspective to the challenge faced by Allentown and Youngstown is that human systems like natural systems, need diversity. Multiple interactions and diversity of perspectives enriched social capital formation and contribute to a city vitality.

Swanstrom was of the view that an ecological frame is a "*revolt against the mechanical and linear approach to*

scientific explanation".⁵¹ It encourages people to think about regions as interconnected systems with extensive feedback processes that must be understood for successful human intervention. The metropolitan policing of traffic or efforts to eliminate pests from crops generate interconnected impacts on other variables at multiple levels. Pest control can make an ecosystem more vulnerable to future re-infestation, or

⁴⁸ Safford, S. 2004. *Why the Garden Club Couldn't Save Youngstown: Civic Infrastructure and Mobilization in Economic Crisis*. MIT Industrial Performance Center Working Paper Series, Cambridge: MIT.

⁴⁹ Safford, 26.

⁵⁰ Safford, 26.

⁵¹ Swanstrom, T. 2008. *Regional Resilience: A Critical Examination of the Ecological Framework*, Working Paper 2008-7. Macarthur Foundation Research Network on Building Resilient Regions, Berkeley: University of California, 2.

contaminate food, poison animals etc; traffic control efforts may encourage more dispersed development, thus worsening the problem in the future. Thinking of regions as ecosystems means thinking of resilience at multiple levels with multiple equilibriums where imbedded systems respond to perturbations by changing their structure and functions and taking on new forms. Regions reinvent themselves in the face of challenges. Multiple new equilibriums and multiple pathways are possible to adapt to the loss of industrial jobs in order to discover new, more profitable, niches.

Although ecology offers important insights about resilience, there are limits to the comparison between natural and human systems. Swanstrom argues that the ecological frame of resilience fails to recognise *the power of political authority* in setting the rules and structures within which resilience occurs. Governments can change the rules of the game whereas photosynthesis cannot be overturned.

People do not start from a state of nature, but from a society shaped by laws, policies, and human institutions that may nurture or undermine resilience. According to Swanstrom, the most powerful insight of the ecological frame is recognition of the need to protect and preserve *separate spheres of resilience* in public, private and civic domains, rather than subjecting them to a common approach. The powerful lesson of nature is about the value of nested diversity, the power of recombination and evolution. Swanstrom highlighted some features of resilience in the public, private and civic spheres:⁵²

- *Private* - Private markets are *the fastest and most rapidly innovative* level of resilience. Decision-makers respond quickly to changing

technology and consumer preferences. The risk for resilience is when markets get “locked in” to a set pattern and when market actors push their interests at the expense of society’s resilience. Competition and self-interest can undermine resilience. A recent example is that unregulated or weakly regulated mortgage brokers can seduce lenders into loans that make households more vulnerable to economic insecurity and job losses.

- *Public* - *The slowest part of resilient systems.* Government policies and infrastructures (if guided by public interest considerations) provide a framework within which market and civic actors take actions within their own sphere. The risk resides in government being captured by private interests, or unable to build enough public support for action. Monopolies and rent seeking practices insulate policies from the changes needed to adapt to a changing environment.

- *Civic (non-profit)* - Civic networks are at the centre of resilient ecosystems where a diversity of stakeholders may devise innovative solutions that transcend the limits of their self-interests. Civic society can become un-resilient when infected with “cronyism”, become ingrown and develop group-thinking that precludes creative and resilient solutions.

Insights and implications for NS

The NS Initiative has argued that , “civic results emerge when there is a will to deploy social capital and a capacity for collective problem solving.”⁵³ NS argues

⁵² Swanstrom, *Regional Resilience: A Critical Examination of the Ecological Framework, Working Paper 2008-7*, 20-23.

⁵³ Bourgon. *The New Synthesis of Public Administration Fieldbook*, 58.

that governments are called upon to steer society through a continuous and unprecedented process of change “resulting from the combined effects of globalisation, a technological revolution, unprecedented population migration, and accelerating climate change.”⁵⁴

NS highlights the importance of building trust (social capital). It focuses on the dynamic and interactive nature of building and maintaining trust to propel society towards a better future. It notes that “both bonding and bridging forms of social capital” are important for building resilience.⁵⁵ Bridging forms of social capital links diverse people, groups and communities, and circulates new information, perspectives, ideas and opportunities.⁵⁶ Overall, the NS view of social capital highlights the importance of dynamic interactions, building bridges, understanding a continuous process of change and boosting social tolerance for diversity.

The New Synthesis champions “synergy through diversity.”⁵⁷ Addressing complex problems requires a diverse set of approaches and contributions from diverse actors. NS cautions that tight communal and/or societal bonds can lead to rigidities and “brittleness” in the face of adversity if social groups are not open enough to allow for novelty.⁵⁸ Therefore, the ‘bridging’ notion of social capital is essential for building resilience and steering society through an ongoing process of change.

The literature on ecology and human systems provides important takeaways for NS and public sector leaders:

- *Value diversity and prevent homogeneity.* The Youngstown/Allentown case study emphasises the need for diversity within and across the public, private and civic spheres of life in society.
- *Favor dynamic thinking in decision-making.* Dynamic approaches view regions as interconnected systems with a broad range of options that impact other variables. Resilience operates at multiple levels with multiple possible equilibriums where systems respond to perturbations by changing their structure and functions (reinvent), thus generating new pathways to a whole new reality.
- *Public, Private, and Civic spheres operate at different speeds.* Each sphere has a different pace of innovation and adaptation. They have different functions and distinct forms of resilience.

Resilience and Fragility (Resilience Capacity Building)

De Boer, Muggah and Patel explored the concept of resilience from a city perspective.⁵⁹ The authors argued that resilience and fragility are not antonyms, but intertwined facets of the reality experienced by most cities. No city is exclusively fragile or resilient. They typically experience a combination of these two characteristics simultaneously. Indeed, cities can experience acute and even chronic forms of fragility due to

⁵⁴ Bourgon. *The New Synthesis of Public Administration Fieldbook*, 180.

⁵⁵ Bourgon. *A New Synthesis of Public Administration*, 280.

⁵⁶ Bourgon. *A New Synthesis of Public Administration*.

⁵⁷ Bourgon. *The New Synthesis of Public Administration Fieldbook*, 113.

⁵⁸ Bourgon. *A New Synthesis of Public Administration*.

⁵⁹ de Boer, John, Robert Muggah, and Ronak Patel. 2016. *Conceptualizing City Fragility and Resilience*. Policy Report, New York: United Nations University Centre for Policy Research. <https://cpr.unu.edu/conceptualizing-city-fragility-and-resilience.html>

cumulative risks, while at the same time exhibiting elements of resilience.

For de Boer, Muggah, and Patel, “*resilient cities are those that can maintain and potentially improve the delivery of their core functions before, during, and after exposure to shocks and stresses.*”⁶⁰ This is enabled by activating protective qualities at the individual, community and institutional levels to engage with hazards and stresses, cooperate, maintain functionality and prosper. It includes actions that reduce exposure, limit vulnerability, minimize the accumulation of risks and enhance coping and adaptive capabilities. At the city level, these protective factors can be institutional, including norms, standards, policies, programs, and organizations. They can consist of socio-economic factors, infrastructure, and environmental properties that minimize internal and external risks. Acknowledging fragility and *resilience co-existence implies that resilience is a dynamic property and that there is no end-point or absolute final state.*

Similarly, de Boer, Muggah, and Patel argue that *resilience can be positive or negative* and, in some cases, it may lead to greater fragility. Urban fragility and resilience are influenced by broader regional and national factors that shape the extent of risk or enable more protection. Cities are *systems nested in broader systems*. Urban fragility and resilience are influenced by conditions prevailing outside of the city, including in rural settings. It is important to consider the dynamic interrelationships between rural and urban settings. Changes in the wider environment can generate varying degrees of risk at the city scale. How cities choose to govern themselves (manage, mitigate, prevent, adapt to, or ignore) and how they address internal and external risks determine the extent of city fragility and resilience.

Insights and Implications for the NS

Although the literature on resilience and fragility was limited and generally focused on the context of sustainability and the environment, it still offered interesting ideas relating to risk in the context of the city, as an area of focus. In particular, two interesting ideas for NS emerge:

- *Resilience is a dynamic property* - Resilience is less of a status, and more of a dynamic ever-changing process and relationship with fragility. Governments need to keep in mind that programs should have contingencies to constantly adapt and improve; otherwise, initiatives may become fragile over time as a corollary of the shifting environments, institutions, society, etc..
- *Resilience as a continuum of positive or negative changes* - Governments need to be aware that changes in the pursuit of resilience have various intended and unintended consequences on surrounding environments. Without taking special care to examine the unintended impacts of a program or initiative, a push-and-pull situation may arise where some positive changes in one area may lead to negative shifts in another.

Literature about Resilient “Spaces” of Possibilities

According to *Walker and Salt*, a resilient framework is more than increasing efficiency, reducing waste, and optimizing management of systems. It is about creating “spaces” and expanded possibilities. Focussing primarily on efficiency measures leads to less diversity

⁶⁰ de Boer, Muggah, and Patel, 3.

and ultimately less efficiency by reducing the range of possible futures.

Walker and Salt argue that a resilient system needs openness and diversity to change as the world changes while maintaining its functionality. Resilient organisations, systems, and communities are forgiving of management mistakes and miscalculations;⁶¹ course corrections are always possible and indeed necessary. According to Walker and Salt, several variables contribute to building a resilient spaces and resilient world:

1) *Diversity* - “a resilient world would promote and sustain diversity in all forms (biological, landscape, social, and economic)”⁶²

2) *Ecological variability* - “a resilient world would embrace and work with ecological variability (rather than attempting to reduce it)”⁶³

3) *Modularity* - “a resilient world would consist of modular components”⁶⁴

4) *Acknowledging slow variables* - a resilient world would have a policy focus on “slow”, controlling variables associated with thresholds”⁶⁵

5) *Tight feedbacks* - “a resilient world possesses tight feedbacks (but not too tight)”⁶⁶

6) *Social capital* - a resilient world would promote trust, well-developed networks, and leadership (adaptability)”⁶⁷

7) *Innovation* - “a resilient world would place an emphasis on learning, experimentation, locally developed rules, and embracing change”⁶⁸

8) *Overlap in Governance* - “a resilient world would have institutions that include redundancy in their governance structures and a mix of common and private property with overlapping access rights”⁶⁹

9) *Ecosystem services* - “a resilient world would include all the unpriced ecosystem services in development proposals and assessments”⁷⁰

The Ecomuseum Kristianstads Vattenrike

The Ecomuseum Kristianstads Vattenrike illustrates how “the empowerment of locals and, at the same time, the development of governance at a larger scale can contribute to a region’s resilience”. The history of the Kristianstad region illustrates how conventional approaches to managing natural resources may lead to the progressive deterioration of the area’s environmental values and future options.⁷¹

⁶¹ Walker, Brian, and David Salt. 2006. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Washington: Island Press, 144-151.

⁶² Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 145.

⁶³ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 146.

⁶⁴ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 146.

⁶⁵ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 146.

⁶⁶ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 146.

⁶⁷ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 147.

⁶⁸ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 147-148.

⁶⁹ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 148.

⁷⁰ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 148.

⁷¹ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 138.

Kristianstad Vattenrike

The people of Kristianstad were concerned about the health of their local wetlands. The international recognition⁷² of the declining health of their wetlands⁷³ did not bring about much changes. The community decided that a *different approach* was needed to manage, preserve, and protect the wetlands. They wanted to explore more options than the ones presented to them and new thinking to weigh in when old solutions no longer worked.

The community was already playing an active role in the protection of the wetlands. *Sven-Erik Magnusson* formed the EKV⁷⁴ to bring more synergy among existing activities such as—creating inventories, running monitoring programs, carrying out restoration activities, improving land use and management practices. A shared *concept* was needed. The *Ecomuseum* provided a forum for the various groups with to exchange ideas and develop a shared vision for the future of the region.

People realised that water and landscape are a source of riches. Magnusson, a local member of the community, successfully brought together interested citizens and organizations. To garner support for the EKV, Magnusson focused on specific individuals in some key organizations interested in Kristianstad and its surrounding wetlands. This included researchers from local universities, officials from the World Wildlife Fund, a former president of the Kristianstad Tourism Board and the director of Sweden's National Museum of Natural History. With their participation, EKV was able to resolve conflicts, share information sharing, and ensure coordination. More groups progressively came on board, such as the Country Administrative Board, the BSNES, and environmental and farmer associations.

In 1988, the municipality executive board acknowledged the growing environmental threat to the wetlands and that a body like the EKV could play. Public awareness was raising about the importance of the wetland for recreation, tourism, biodiversity and water purification. The following year, the Municipality of Kristianstad assumed responsibility for the running of the EKV.⁷⁵ Several groups contributed to funding various initiatives.

The EKV evolved into a flexible and collaborative network with representatives from government, business and civic society as well as international organisations.⁷⁶ It has conducted numerous interventions since its inception. The mapping of the flooded meadows in 1989 provided valuable information on the wetland ecosystem. The EKV maintains a close collaborative relationship with the farmers, making use of their knowledge and understanding of agricultural practices friendly to the wetlands that were passed on from generation to generation.

⁷² Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 125.

International recognition refers to the 1975 Convention on Wetlands of International Importance.

⁷³ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 125-126.

Bird populations were decreasing, the lake was increasing eutrophication and was being clogged by plant growth.

⁷⁴ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 132.

⁷⁵ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 133.

⁷⁶ Olsson, Per, Carl Folke, and Thomas Hahn. 2004. "Social-Ecological Transformation for Ecosystem Management: the Development of Adaptive Co-management of a WetlandLandscape in Southern Sweden." *Ecology and Society* 9 (4): 2-28.

<https://www.ecologyandsociety.org/vol9/iss4/art2/>

Many lessons can be learned from this case regarding the resilience of socio-ecological systems:⁷⁷

- *An imposed solution may not be the best solution to protect an ecosystem.* An understanding of local history and culture must form part of the design of a solution. Local ownership of the solution is the best guarantee of success.
- *Viable solutions operate at multiple scales.* A viable approach must consider the local, regional national and international scales and the interrelationships among them. The coordinating organisation included representatives from each of these levels in the social network. Representatives must be engaged in a way that allows them to actively contribute to the governance of the system and share that responsibility with others and feedback.

The formation of the EKV took place because several organizations with a stake in the KV agreed to work together and that they were able to develop a shared vision and build consensus on how to manage the KV. In the earliest stages, the formation of the EKV was catalyzed by one individual who brought the various actors together. Leadership is a crucial component in building adaptability and transformability.

Insights and Implications for NS

The case study is very much in line with the *NS Exploratory cycle* documented in *The NS Fieldbook*. The NS Exploratory cycle include four key phases:

- *Positioning.* Framing issues from a broader perspective and in particular

in societal terms lays the basis for collaboration among multiple interested groups.

- *Leveraging explores how to build and harness the power of others.* A key finding is that there are always enough resources around to make progress by aligning available knowledge, know how and capabilities (wherever they may reside) to achieve a shared purpose.
- *Engaging people, families, communities provides the capabilities and energy to bring about change, lead a public transformation and propel society forward*
- *Synthesising an overall approach to lead a public transformation that makes use of the authority of government at various levels, the collective capacity to bring about change and the active participation of citizens and communities.*

The NS exploratory cycle uses concepts related to system thinking, complex adaptive system, complexity theory and living system theory to help public sector leaders invent solutions to complex issues and intractable problems. The NS exploratory cycle encourages a blended approach that brings together a diversity of perspectives to collective problem solving. It is a "trade mark of the NS approach to problem solving"⁷⁸ and it contributes to resilience.

The initial phase for EKV is consistent with NS exploration of the interrelationship between agency, system-wide and societal results to gain an appreciation of the overall effects of potential government interventions, and how they may transform the interactions between the public,

⁷⁷ Walker and Salt. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, 136-137.

⁷⁸ Bourgon. *The New Synthesis of Public Administration Fieldbook*, 15.

private and civic spheres of life in society.⁷⁹ The EKV approach displays a dynamic process of discovery focussing on public purpose. In this case, the process of developing a shared understanding and vision for the future of the region goes together with framing issues from a societal point in view as an essential step to leading public transformation. According to Bourgon, positioning

“helps gain an appreciation of the ripple effects of government actions across vast systems. It reveals the multidimensional nature of complex issues and the need for co-operation across multiple agencies, with other governments, the private sector and civil society.”⁸⁰

The second phase of the work of the EKV is equally consistent with NS exploratory cycle. How can a different sharing of responsibility between government, citizens, families and communities yield better public and civic results? More broadly, this is an exploration of how to transform the relationship between the public sector and citizens from one of dependency to one of mutuality and shared responsibility.

Beyond the validation of many variables shared with the NS perspective, there are a few notable takeaways:

- *Leadership of proximity.* The case powerfully illustrates the importance of leadership. Someone close enough to the issue to be knowledgeable and committed enough to act is often at the origin of an important process of change. From there, others will come on board over time; change starts somewhere.

- *Building a coalition.* A small group of people committed to a shared purpose provides the sustaining power to a change process
- *Community ownership.* Viable solutions must enjoy public support. They end up reflecting “the way we do things” and “the way we live”. Collective problem solving is the manifestation of a resilient society able to invent a better future and to take charge of issues relevant to them.

Literature from Organisational Development (Organisational Resilience)

The notion of the ‘*resilience capacity*’ of firms is the result of cumulative experiences of an organisation. Lengnick-Hall and Beck argued that organisational resilience is a multidimensional attribute that results from the interaction of three properties:

Cognitive resilience - Cognitive resilience enables an organization to notice, interpret, analyze, and formulate responses in ways that go beyond simply surviving an ordeal. Firms with cognitive resilience encourage ingenuity and look for opportunities to develop new skills rather than emphasizing standardization and need for control. Constructive sensemaking and a strong ideological identity contribute to cognitive resilience.⁸¹

⁷⁹ Bourgon. *The New Synthesis of Public Administration Fieldbook*, 73.

⁸⁰ Bourgon. *The New Synthesis of Public Administration Fieldbook*, 73.

⁸¹ Lengnick-Hall, A C, and E T Beck. 2005. “Adaptive fit versus robust transformation: How organizations respond to environmental change.” *Journal of Management* 31 (5): 738-757.

- *Constructive sensemaking* - This refers to the reciprocal interaction of information seeking, meaning ascription, and action. Sensemaking focuses on situation-specific interpretations and judgments rather than programmed explanations. This is especially important when events are unprecedented and require responses that go beyond an organization's normal repertoire.⁸²

- *Ideological identity* - The role of a strong, value-driven, core identity that offers a prime directive for organizational choices is a prevailing theme in reports on resilient organizations.⁸³

Behavioral resilience - This is the engine that moves an organization forward. This property enables a firm to learn more about the situation and to fully use its own resources and capabilities through collaborative actions. A complex and varied action inventory and functional habits, combine to create behavioral resilience.⁸⁴

- *A complex and varied action inventory* - this enables organizations to follow a dramatically different course of action from that which is their norm. Firms with a broad repertoire of action alternatives are able to take inventive action upon learning that familiar past actions are no longer effective.⁸⁵

- *Functional habits* - are rehearsed routines that automatically open communication channels, create interpersonal ties, and seek multiple

sources of information when uncertainty increases.⁸⁶

Contextual resilience - This provides the setting for integrating and using cognitive resilience and behavioral resilience. Contextual resilience is composed of connections and resources. Deep social capital and a broad resource network contribute to organisational resilience.⁸⁷

- *Deep social capital* - Deep social capital evolves from repeated, personal interactions between people and between organizations and is most effective when based on trust. Benefits of deep social capital include access to broader information sources and expanded knowledge and resource pools. In addition, as groups recognize their interdependence, resource exchange becomes easier. Deep social capital builds commitment and a sense of purpose that enables people to find meaning in uncertain situations.⁸⁸

- *Broad resource networks* - This encompasses both tangible and intangible resources. According to Lengnick-Hall and Beck, resilient people have an unusual ability to get others to help them out. There are parallels at the organizational level. Firms that make highly visible contributions; that occupy crucial economic positions; or that are seen as essential factors of production; are able to obtain resources, concessions, and assistance that other organizations are denied.⁸⁹

As an organisation develops its resilience

⁸² Lengnick-Hall and Beck, 750.

⁸³ Lengnick-Hall and Beck, 751.

⁸⁴ Lengnick-Hall and Beck, 751.

⁸⁵ Lengnick-Hall and Beck, 751.

⁸⁶ Lengnick-Hall and Beck, 751.

⁸⁷ Lengnick-Hall and Beck, 752.

⁸⁸ Lengnick-Hall and Beck, 752.

⁸⁹ Lengnick-Hall and Beck, 752.

capacity, it interprets uncertain situations more creatively (cognitive resilience) and therefore is better able to conceive both familiar and unconventional activities (behavioural resilience) that will take advantage of relationships and resources (contextual resilience). In this case, resilience capacity enables firms to move beyond survival and prosper in complicated, uncertain and threatening environments.⁹⁰

Insights and Implication for NS

The literature proposes a number of articles with organisational ideas that blend traditional fields of behavioural psychology and organisational studies. In particular, the work of Lengnick-Hall and Beck on 'resilient capacity' unearthed important factors that government should regularly survey before implementing a new program or policy:

- *Cognitive resilience* - An organisation's ability to notice, interpret, analyse, and create responses that move beyond simply survival. For government departments

to be able to recognise problems and advise on possible solutions, they need to have the proper tools to inform their decisions and implement an effective response.

- *Behavioral resilience* - An organisation's ability to learn about the situation and to collaboratively use its own resources and capabilities. Governments need to be able to comfortably yield their resources in such a way that can communicate with multiple sources of information and shift direction in the face of uncertainty.

- *Contextual resilience* - An organisation's ability to develop and expand a resource network and draw on its connections when needed. Contextual resilience provides the setting that integrates cognitive and behavioural resilience for government, and generally dictates what it can do and how well it can do it.

3. Conclusion: What have we learned?

For NS, resilience provides an important anchor for the current research work. It is central to the NS governing system and to what government can do to accelerate the adaptive capacity and the resilience of society. Thus, in order to build on the previous work, we completed a review of current academic literature. In reviewing literature that has emerged, been circulated, and popularised, several important themes emerged:

Intentional Resilience

Emerging from literature on Urban Planning (Regional Resilience), Intentional Resilience refers to a high state of readiness and a strong capacity in practice to respond and recover. In other words, a region cannot neglect self-assessment and readiness preparation measures, nor can

it ignore building on-the-ground capacity that can respond to and recover from traumas when they occur. Regions that fail to prepare and subsequently perform poorly in the face of challenges display neglectful resilience.

⁹⁰ Lengnick-Hall and Beck, 750-751.

Importance of Cities and Regions as a platform

Also emerging from the literature on Urban Planning (Regional Resilience) is the emphasis on different points and at different scales. In particular, there is a general consensus that government should focus on the scale of cities or regions rather than the entire country as a whole piece. Not only are they dynamic systems of convergence where multiple actors meet, interact, and exchange ideas; but they are unique spaces that have different requirements and equilibriums. Multiple elements interact to produce dynamic feedback that helps ensure that a region or a city is engaged in an ongoing process of adaptation. There are multiple possible “equilibriums” and several sub-optimal outcomes. Building resilience is highly complex and should be expected to vary by scale and time in order to better understand how an area deals with responding to challenges (such as rapid growth, immigration, deindustrialization, etc.).

Social Determinants and Mental Health

In reviewing literature from Psychology (Individual Resilience), an emphasis on the importance of social determinants and mental health emerged. People commonly demonstrate resilience; however, this does not mean that a person does not face difficulties or manifest distress. Resilience is not a trait that people either have or do not have. It involves behaviors, thoughts and actions that can be learned and developed in anyone. The idea of resilience

as a trait and process helps to avoid a false dichotomy -that people are or are not resilient. Resilience is a dynamic capacity that can be built or eroded over time. Although this view makes it hard to measure resilience, this difficulty can be overcome by using a combination of performance indicators including wellness, health and social indicators as well as individual wellness indicators. Thus, government programs and services that promote resilience should be complementary to public health measures focussing on the social determinants of health.

Value diversity and prevent homogeneity

The literature on Ecosystems (the Resilience of Human Systems) presented a case study highlighting the value of diversity and prevention of homogeneity. Because cities have a unique structure of civic relations, industries and social networks, leading to uniquely different socio-political and economic spheres, governments need to be aware of the differences between the public, private and civic spheres. Thus, due to their differences, a mechanical approach promoting a single, homogenous approach will make a city or region less resilient and ignore their innate strengths and diversity. In other words, by looking at human systems like an ecosystem, governments will be better positioned to reap the benefits to their civic, private, and public spheres, and the multiple interactions and diversity of perspectives that can enrich social capital formation and contribute to the longevity of a city and region.

Cognitive resilience applied to organizations

The idea of cognitive resilience emerged from the literature on Organisational Development (I don't think so. I think it comes from Psychology and then was applied to organizations (Organisational Resilience). In particular, our examination of organisational resilience revealed that resilience is a multidimensional attribute that results from the interaction of a few properties, including cognitive resilience. Cognitive resilience enables an organization to notice, interpret, analyze, and formulate responses in ways that go beyond simply surviving an ordeal. For government, this means being able to encourage ingenuity ??? Innovation ? Creativity ? and look for opportunities to develop new skills rather than emphasizing standardization and need for control. Thus, for a government to be resilient, it needs to have a complex and varied action inventory (i.e., plans and strategies to follow a dramatically different course of action from the norm), and strong functional habits (i.e., communication channels that create interpersonal ties, and seek multiple sources of information when uncertainty increases).

cumulative risks, while at the same time exhibiting elements of resilience. Thus, for governments to develop a resilient city, they need to develop capacity that can maintain and potentially improve the delivery of their core functions before, during and after exposure to shocks and stresses.

Fragility

Finally, in reviewing literature on Resilience and Fragility (Resilience Capacity Building), the relationship between resilience and fragility emerged as important from a city perspective. Resilience and fragility are not opposites, but co-exist dynamically, meaning that there is no end-point or absolute final state. Capacities are constantly changing (some are improving while others become more fragile). Cities can experience acute and even chronic forms of fragility due to

APPENDICE

Medellín - The Results

Equitable - Medellín has been successful in creating new initiatives and supports that targeted vulnerable people, such as women and LGTBI. For instance, in 2018, government had supported financially disadvantaged groups with 10,910 consumer equity and hope loans. Similarly, training and learning programs, like the Unidad Familia Medellín Program advised and supported 34,625 vulnerable families. Finally, the government has also taken steps to protect women and LGTBI communities. Since 2015, Medellín has been the 22nd city in the world to enter the UN Women Safe Cities program, an initiative to make visible and act in the face of harassment and sexual and gender violence in public spaces. Similarly, as part of the Rainbow Cities Latin American Network, the government has also improved the living conditions with services such as mental health support, legal and career advice.

Safe and Peaceful - With the creation of the Information System for Security and Coexistence in 2009, the government has been using gathering and examining crime and violence data (provided by the police, the Attorney General's Office and Legal Medicine) and trying to identify trends and prevent them in the long term. Government has also taken an interest in school safety through initiatives like the School Protective Environment, which funded programs to prevent dangerous and harmful situations (e.g., harassment, teenage pregnancy, sexual abuse, suicidal behavior, and drug use), which benefited 291,444 students in 2017.

Sustainable and Risk Prepared - Medellín has committed to Sustainable Development Goals (SDGs) that aim to eliminate extreme poverty, inequality and injustice..." One example is the Clean alternatives initiative, which invests in efficient and environmentally-friendly public transportation projects. The initiative also enhanced current operating vehicles: it retrofitted an entire bus fleet with low emission technologies, replaced fossil fuel taxi cabs with electric ones, constructed 80 km of bike paths, and created 25 eco-stations for public electric cars.

Well-informed and Engaged - Through different initiatives, Medellín have been providing residents (people of all ages) with opportunities to learn beyond classrooms and educational centers. For instance, Good Start has provided financial and resource support to pregnant mothers and up to five years of age, while the Forming Talents program has provided job training courses for 1,754 young people, since 2018. Finally, senior adults are benefiting from the Digital Education initiative, which aims to train people in basic digital skills and promote access to technology.

⁹¹ ACI Medellín, 70.

⁹² ACI Medellín, 22.

⁹³ ACI Medellín, 7.

⁹⁴ ACI Medellín, 49.

⁹⁵ ACI Medellín, 22.

⁹⁶ ACI Medellín, 23.

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