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INEQUALITY AND MOBILIZING FOR ROBUST ACTION: AN ANALYSIS OF CITY RESILIENCE STRATEGIES

W.E. Douglas Creed, Dennis Jancsary, Renate Meyer, and Markus Höllerer

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INEQUALITY AND MOBILIZING FOR ROBUST ACTION: AN ANALYSIS OF CITY RESILIENCE STRATEGIES

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Organizers: Chang Lu & Trish Reay; Discussant: C. R. Hinings

W. E. Douglas Creed
University of Rhode Island
wedouglascreed@gmail.com
douglascreed@uri.edu
+1 617-823-9052 (mobile)
+1 401-874-5806 (office)

Dennis Jancsary
WU Vienna
dennis.jancsary@wu.ac.at

Renate E. Meyer
WU Vienna & CBS Copenhagen Business School
renate.meyer@wu.ac.at

Markus A. Höllerer
WU Vienna & UNSW Sydney Business School
markus.hoellerer@wu.ac.at

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Abstract
The notion of the resilient city has gained prominence over the last years, pushed forward by NGOs and think tanks such as the Rockefeller Foundation and ARUP. This research focuses on how cities make sense of the complex relationship between inequality and resilience in their published resilience strategies. Our research question is: How do cities – under the guidance of the Rockefeller Foundation’s 100 Resilient City Challenge – collectively theorize the role and position of inequality in their larger effort to become more resilient? An underlying assumption is that city’s legacies of division -- such as those stemming from inequality, racism, and poverty -- will make successfully mobilizing diverse constituencies for prolonged, constructive engagement a difficult challenge. By ultimately offering a comparative picture that crosses cultural contexts, we hope to enhance our understanding of how global resilience frames intersect with locally constructed narratives of city resilience and inclusion and the implications of those intersections for a city’s distinctive articulation and implementation of resilience strategies. With this we contribute to the scholarly domains of both urban studies and organizational research.
As an ever-greater majority of the human population resides in cities, the challenge of maintaining human well-being becomes more complex. While cities are places where people find opportunity and innovation, they are also places "where stresses accumulate or sudden shocks occur that may result in social breakdown, physical collapse or economic deprivation." (Rockefeller & Arup, 2014:3). These facts are the drivers for a growing interest in city resilience. The Rockefeller Foundation has defined city resilience as "the capacity of cities to function, so that the people living and working in cities – particularly the poor and the vulnerable – survive and thrive no matter what stresses or shocks they encounter (Rockefeller & Arup, 2014:3). As this definition suggests, poverty and vulnerability need to figure significantly in strategic thinking about city resilience not only because the poor and vulnerable are more likely to suffer the greatest impacts of breakdowns in urban systems, but also because they are more likely to live under the sort of environmentally and economically degraded conditions that make them less able to deal with stressors and shocks in the first place. This means that to enhance city resilience, cities need strategies that address the inequalities that underpin the heightened vulnerability of different urban constituencies.

This research focuses on cities’ resilience strategies and how cities theorize and locate the topic of inequality in their resilience strategies in ways that can mobilize stakeholders for collaboration in addressing resilience challenges. We approach city resilience as a nexus of “grand challenges” – a concept that refers to large, complex, systemic and intractable problems that are characterized by many interactions/linkages, emergent and changing understandings, and nonlinear dynamics. We argue that inequality is both a grand challenge in its own right and a key aspect of the grand challenge of enhancing city resilience. For this reason, in their resilience strategies, cities need to construct inequality not as an isolated problem, but as a ‘cog’ in a larger set of issues that are mutually co-constitutive and interdependent (e.g., Mair, Wolf, & Seelos, 2016) and cut across a variety of institutional spheres (e.g., Mair, Martí, & Ventresca, 2012). In addition to inequality, examples of such interdependent issues include: social and political marginalization, economic exploitation, poverty alleviation, water scarcity, access to health care, safe and affordable housing and transit, and disparate vulnerability to effects of climate change.

Grand challenges are beyond the ability of any individual, institution, government, or company to solve independently and as such require collaboration and a system-wide capacity for robust action (Ferraro, Etzion, and Gehman, 2015). Consequently, our analysis has two underlying assumptions. First, viewing inequality as part of a nexus of interrelated grand challenges implies that addressing it will require prolonged, cooperative engagement on the
part of diverse constituencies (Ferraro et al., 2015). Second, because any resilience related processes will themselves unfold in the context of a city’s’ established systems of social relations -- including its legacies of division, such as those stemming from inequality, racism, and poverty – inequality is also a potential barrier to the prolonged, constructive engagement of diverse constituencies that we assume is necessary.

To explore the issue of how cities attempt to create the conditions for and foster such constructive engagement in light of their legacies of inequality, we focus on the published reports of participants in a Rockefeller Foundation initiative called the 100 Resilient Cities Challenge (100RC). We chose to examine the reports that participating cities generate through their execution of a prescribed strategic planning process because of the expressed vision Rockefeller has for these reports. They are meant to be more than artifacts of the resilience strategy process: “more than a milestone” or “static road map,” participants’ resilience strategies are to be “a call to action” and “a living document to be continuously fine-tuned as priorities are addressed and initiatives get implemented.” (http://www.100resilientcities.org/pages/100RC-FAQ#/-_/). The concept of living documents refers not just to a type of text, but to an ongoing process for bringing diverse constituencies and divergent views together in order to negotiate and capture emergent understandings and facilitate ongoing learning, adaptation and change. By creating and convening the 100 RC network, defining city resilience in terms of poverty and vulnerability, and instigating city resilience strategic processes around the globe that employ its City Resilience Index (the Index), the Rockefeller Foundation has potentially legitimated the addressing of inequality as a core feature of city resilience as an emerging domain of activity. Consequently, the resulting city resilience strategies could inform the institutional work of lessening inequality of diverse actors globally, not just municipal governments, but collaborators from across the public, private, and civic sectors.

In light of this, our central research question is as follows:

How do cities – under the guidance of the Rockefeller Foundation’s 100 Resilient City initiative – collectively theorize the role and position of inequality in their larger effort to become more resilient? More specifically, we explore the following issues:

1) How does City Resilience Index/Framework of Rockefeller/Arup theorize and legitimate inequality as a relevant factor in city resilience strategies?
   a) Which dimensions of resilience relate to inequality, and how?
   b) What aspects and kinds of inequality are rendered relevant in the framework?

2) How do cities through their resilience strategy reports
c) locate inequality in a nexus of broader grand challenges and link it to the shocks and stresses that threaten city resilience?

d) integrate inequality in localized chains of cause and effect?

e) anchor its theorization of inequality to the theorization of the Index?

The answers to these research questions, ultimately, are meant to help us better understand how cities attempt to create the conditions for and foster constructive engagement in light of their legacies of inequality. In what follows, we introduce the idea of city resilience as a domain of activity. We then describe the Rockefeller Foundation’s initiatives to advance city resilience and describe our data and approach. Next, we present some initial findings, including frame analyses of the Resilient City Index and of two cities’ resilience strategies and their implications for our research questions. Finally, we discuss next steps for the project.

CITY RESILIENCE: A CONTESTED CONCEPT

City dwellers are a rapidly growing majority of the world’s population. At the same time, however, cities face increasing risks stemming from diverse global challenges that can result in physical/infrastructural, economic, or social breakdowns. Consequently, “city resilience” in the face of sudden shocks (e.g., natural disasters or acts of terrorism) and enduring stresses (e.g., social inequity, increasing unemployment, or eroding infrastructure) has garnered increasing attention both in theory and practice.

The concept of city resilience is a contested one, claimed by diverse professionals, including urban planners, environmentalists, economists, disaster planners, and governments (Vale, 2014). Consequently, Vale (2014:191) highlights the need to wrestle with the concept’s dominant assumptions and socio-political complexity. He encapsulates the latter in a set of questions that he argues we must address: “Resilience for whom and against what? Many different entities (e.g., individuals, communities, academic disciplines, professional fields, governments, corporations) all seek to claim the term. How do they decide whose resilience to care about? And whose resilience is omitted in the process?”

As these questions suggest, the politics of inclusion and exclusion pose a fundamental problem in the deployment of city resilience as a concept. This implies that institutional discourses that legitimate inequality (e.g., Amis, Munir, & Mair, 2017) may prove to be impediments for resilience efforts. The problem is exacerbated, in Vale’s view, by a history of overreliance on the engineering and ecological framings of resilience, at the expense of social systems. Engineers tend to see resilience in terms of how quickly a system bounces back after
a perturbation. Ecologists, concerned with ecosystem viability and stability, also think of resilience in terms of systems’ ability to absorb changes and return to an equilibrium. Inherent in both models, Vale argues, is the idea of a return to a presumably desirable “pre-perturbation status quo,” an assumption that does not so easily apply to social systems where the prior status quo may be undesirable, inequitable, or untenable. Consequently, for many concerned with city resilience, the concept can instead encompass both responsiveness to unexpected disruptions or changes and adaptation to predictable, ongoing changes, such as deindustrialization or city growth or shrinkage (Vale, 2014), rather than recovering a pre-perturbation state. But the concept’s problems do not end with a framing more suitable for viewing social systems.

Even if [we] define reliance as ‘the ability of a system to adjust in the face of changing conditions’, there is still a great political distance to travel before this insight can be made useful on the contentious terrain of cities. There is a vast and still-growing literature on ‘uneven development’ and ‘social exclusion’, and this implies either that most forms of urban equilibrium are illusory or that that such equilibrium as exists is built upon profound inequality. Moreover, the dynamics of any proposed system change are almost always actively contested. Underlying nearly all socio-environmental systems is a struggle for control over what the next state will be – and a corresponding struggle over who will control it. (Vale, 2014:193).

As these comments suggest, inequality, patterns of exclusion, and struggles over control would make creating the conditions or “scaffolding” (Mair et al., 2016) needed for collaboration and prolonged constructive engagement a complex socio-political accomplishment, particularly since attempts at institutional work are themselves subject to the effects of systemic and episodic power (e.g., Amis et al., 2017). Inequality, consequently, relates to resilience in at least two distinct ways: as a target of resilience initiatives, and as a barrier to such initiatives.

In terms of its initiatives, the Rockefeller Foundation offers two definitions of city resilience that do to a degree recognize inequality and exclusion as factors. City resilience refers to: 1) “the capacity of cities to function, so that the people living and working in cities – particularly the poor and vulnerable – survive and thrive no matter what stresses or shocks they encounter” (Rockefeller & Arup: 2014:3); and 2) “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience” (http://www.100resilientcities.org/resilience#/-_/). In the latter definition, chronic stresses refer to stresses that “weaken the fabric of a city on a daily or cyclical basis,” for example,
high unemployment, overtaxed or inefficient public transit, endemic violence, and chronic food or water shortages. In contrast, acute shocks are “sudden, sharp events that threaten a city,” such as earthquakes, floods, disease outbreaks, or terrorist attacks.

**The Rockefeller Foundation initiatives and the global interest in resilience**

In 2014, the Rockefeller Foundation, in collaboration with Arup, a global engineering and design group, published the finished version of their City Resilience Framework (the Framework). Years in the making, the Framework is the result of an extensive effort to bring research-based “thought leadership and capacity to the creation of a comprehensive framework that reflects reality” (Rockefeller & Arup, 2014:1). They have used the Framework to underpin their Index, a comprehensive system of indicators and metrics. Through the Framework, the Rockefeller Foundation and Arup have articulated a vision for promoting greater city resilience, promulgated the Index as a tool for city governments to measure and manage their efforts to become ever more resilient, and shaped the agenda-setting workshops of cities around the globe that are participating in their “100 Resilience Cities Challenge”. Thus, the Framework and Index both reflect and animate a global trend. Cities across the globe – US metropoles like Boston or New Orleans, as well as medium-sized and smaller cities in Asia (e.g., Toyama, Japan) and Europe (e.g., Vejle, Denmark) – are developing resilience strategies and appointing resilience officers to tackle resilience challenges. Across the board, what is clear is that city resilience is not a challenge that municipal administrations can tackle alone because it requires a strong commitment across several levels of public administration as well as the support of private sector organizations and civil society. It is these intersections of the local and the global, the public and the private that make studying city resilience strategies of great importance.

Together, through the promulgation of the Index and the creation of 100 RC, the Rockefeller Foundation has catalyzed new levels of resilience planning around the globe and triggered a new collective sense making process. Rockefeller reports designing the 100 RC to respond to two core problems: “cities are complex ecosystems, resistant to change and made up of a myriad group of systems and actors; and existing solutions aren’t scaling or are not being shared more broadly. … cities constantly find themselves reinventing the wheel.” With the Framework and Index as templates for thinking about resilience, members of 100 RC are experimenting, to varying degrees, with the enactment of resilience-directed governance practices. In addition, as a condition of acceptance into the 100 RC and receiving the associated funding, participating cites must engage in the prescribed strategic process, employ
the Index, prepare and publish a “Resilience Report,” and contribute to a learning platform called the 100 RC Platform of Partners.

The Centrality of the Resilience Reports

Rockefeller sees the production of resilience reports as absolutely crucial to each city’s learning process and to the success of the global initiative.

The City Resilience Strategy is one of the core tools that propels 100 Resilient Cities member (sic) through the process of building resilience. The strategy is a product of a six-to-nine month process which unites people, projects, and priorities, and surfaces crucial new solutions so that cities can collectively act on their resilience challenges. Resilience Strategies are more than a milestone – they are a roadmap, a call to action.

(\textit{http://www.100resilientcities.org/strategies#/—})

However, if the resilience strategies are to be meaningful calls to action, they need to mobilize diverse constituencies. This is a particularly important point not only in light of Vale’s (2014) arguments about the contentious, socio-political nature of city resilience and the risks of exclusion and inequity. It is also important when viewed through the lens of recent theorizing about the particular nature of robust action relative to grand challenges.

In the management literature, robust action refers to actions that accomplish “short-term objectives while preserving long term flexibility” such that actors retain the “ability to adapt to new situations as they evolve” (Eccles & Nohria, 1992:11). Noncommittal actions of this sort keep “future lines of action open in strategic contexts where opponents are trying to narrow them” (Padgett & Powell, 2012:24). More broadly, Ferraro et al. (2015) build on these notions to forge a way of understanding the necessary features of robust action vis-à-vis grand challenges. They highlight three attributes or necessary conditions, which they label robust action strategies: participatory architecture, multivocal inscription, and distributed experimentation. By participatory architecture, they contend that the capacity for robust action in the face of grand challenges will require “structures and rules of engagement that allow diverse and heterogeneous actors to interact constructively over prolonged timespans.” Such rules of engagement are important preconditions for inclusive innovation (George, McGahan, & Prabhu, 2012) as they contribute to the ‘scaffolding’ needed for transforming patterns of inequality (Mair et al., 2016). By multivocal inscription, they mean robust action will hinge on an interpretive flexibility arising from “discursive and material activity that sustains different interpretations among various audiences with different evaluative criteria in a manner that promotes coordination among them (?) without requiring explicit consensus.”
Such multivocal inscription is particularly vital, since monolithic and dominant discourses often perpetuate and legitimize inequality (e.g., Amis et al., 2017) through the exclusion of alternative voices. In terms of practice, robust action on grand challenges will require “distributed experimentation” comprising “iterative action that generates small wins, promoting evolutionary learning and increases engagement, while allowing unsuccessful efforts to be abandoned” (Ferraro et al., 2015:11).

Each of these three strategies pertains in some way to the challenges and necessary objectives of working across differences to address grand challenges: prolonged constructive engagement even in the absence of explicit consensus, in the interest of evolutionary learning and increased engagement. We argue that to mobilize diverse constituencies for evolutionary learning over the long haul, in their resilience strategies cities will need enact or otherwise offer plausible narratives about how prolonged constructive engagement is possible and able to make the city better, “in both good times and bad, for the benefit of all its citizens, particularly the poor and vulnerable” (http://www.100resilientcities.org/strategies#/-/). In addition, the reports may need to tell a story that such engagement across historical divides is already happening in the strategic process that gave rise to the report. In other words, on the one hand, reports need to ‘translate’ the more abstract theorization of inequality as provided by Rockefeller into a more localized and practically relevant understanding of inequality that is firmly grounded in the everyday life of each city’s citizens. On the other hand, the reports should also explain how their projected solutions mobilize, include, and engage the very vulnerable groups whose existence is characterized by different dimensions and forms of inequality.

METHODOLOGY AND EMPIRICAL DESIGN

In our study, we draw on the 100 RC online repository that contains the resilience strategies of participating cities as well as additional information about their resilience efforts and activities. Our empirical material therefore comprises member cities’ publicly available strategy reports and other resilience materials produced by Rockefeller, ARUP and 100 RC, as well as web-profiles. Only about 24 members of 100 RC have posted reports at the time of our analysis, with a disproportionate number from the US. For the purposes of this paper, we selected seven cities so as to have both OECD and non-OECD members, cover as many continents as possible given the currently available cities (no African cities had disseminated their strategies yet), and have a mix of linguistic communities (English, Spanish, Arabic, and
one Asian language). In this work-in-progress, we present detailed analyses of only two of the seven cities.

Our analysis proceeded in several steps. In a first step, two of the authors read through the seven cities’ reports, identifying passages where inequality appears either implicitly or explicitly as a topic. Based on these initial readings, we developed a dictionary of key words and concepts employed in these reports. We then coded three reports for every appearance of some form of a key word. For example, we searched “vulnerab*” to capture uses of vulnerable and vulnerability. We found that the appearances of key words and concepts occurred in clusters so we examined closely those select pages where the clusters arose in order to garner a clearer understanding of how each report addressed inequality in public reports on their resilience strategy.

In the next stage, we conducted a series of frame analyses, focusing first on two publications in which Rockefeller/Arup explained in detail the Index, and then on selected pages from the Glasgow and Rio resilience strategies where key words appeared. According to Creed, Langstraat & Scully (2002), frame analysis is a valuable tool for organizational research because it enables depicting and engaging the arrays of arguments surrounding complex social issues (see also Meyer & Höllerer, 2010). Drawing from social movement literature, organizational scholars have, in the last two decades, used frame analysis to enhance our understanding of the socio-political and cultural forces that impinge on organizations,” “the strategic, regulatory, and cultural dimensions of interorganizational and extraorganizational policy debate,” and the impact of institutional arrangements on organizational actors, and process of institutional change (Creed et al., 2002:15). As a property of texts, a frame holds diverse idea elements together in an integrated package of meaning. Frame analysis is, therefore, a way of identifying how social actors deploy ideas elements through integrated packages of meaning in advocacy, collective mobilization, or policy formation. Here, we use frame analysis to sort out how both Rockefeller/Arup and members of 100 RC package and deploy diverse understandings of inequality in ways that construct inequality as relevant to their resilience challenges and strategies, including their efforts to work across the divides inequality creates. The most basic way of approaching frame analysis is the “signature matrix,” (Gamson & Lasch, 1983; Creed et al, 2002), which is used to sort many idea elements found in texts into categories, such as images, metaphors and depictions, roots, and consequences. Such sorting enables, first, discerning how idea elements are deployed in integrated ways, and second, distinguishing the frames or unifying structures that hold them together to build coherent claims (Creed et al, 2002). For our purposes, the
construction of signature matrices for the Rockefeller/Arup documents that promulgated and explained the Index, and for the resilience strategies of two 100 RC members enables us to compare and contrast their understandings of how inequality is an appropriate factor in strategizing around city resilience, be it as a factor in causing vulnerability, amplifying the effects of chronic stressors and shocks, undermining resourcefulness, or impeding collaborative robust action in the pursuit of greater resilience.

To construct and refine our signature matrices, two of the authors each developed a provisional signature matrix for a city (Glasgow or Rio de Janeiro). The authors discussed the provisional matrices in detail and then exchanged the matrices for a second round of development. This process led to the consolidation of provisionally identified frames that seem duplicative and to the elimination of frames in which the role of inequality was insufficient to justify inclusion of the frame. This cycle of discussion, exchange, and revision continued until we were satisfied that the signature matrices identified each distinct frame in which inequality played a clear explicit or implicit role (see Tables 2 and 3).

Concurrent with the construction of the city signature matrices, we jointly examined the Rockefeller/Arup Index, focusing on the detailed explanations of each of its constituent parts – four resilience categories and their 12 underlying performance indicators, and approximately 52 subindicators. Rockefeller/Arup likened these categories and performance indicators to “a city’s immune system,” arguing that “a weakness in one area may compromise the city’s resilience overall, unless compensated for by strength elsewhere” (Rockefeller, 2014:8). Through this process we constructed an adapted signature matrix designed to identify if and how Rockefeller/Arup discussed and theorized the role of inequality, explicitly or implicitly across the resilience categories and indicators. Next, we abstracted from this analysis Rockefeller/Arup’s theorization of the role in inequality in the chronic stressors and shocks or risks associated with each of the 12 resilience indicators and articulated the essential claims and associated warrants pertaining to each of the indicators. Warrants are socially established foundations upon which arguments are built (e.g., Meyer, 2004; Toulmin, 2003). They draw on shared social knowledge, which allows for linking unknown and potentially contested claims to familiar and relatively uncontested foundations. In the context of our study, we assume that warrants inherent in the Index itself legitimate claims that inequalities are crucial factors of city resilience in specific ways. We then contrasted each city’s signature matrix with the warrants in order to identify which warrants underpin specific action frames. This final step enables us to answer those research questions
that pertain to how the Index and participation in the 100 RC Challenge shapes how cities theorize and locate inequality in their larger effort to become more resilient.

**FINDINGS**

**The Rockefeller/Arup City Resilience Framework & the City Resilience Index**

Table 1 provides an overview of our analysis of the Index. The Index defines four categories of ‘fundamental attributes’ of resilient cities (Health and Well Being, Economy & Society, Infrastructure & Ecosystem, and Leadership and Strategy), which are further broken down into 12 underlying indicators (column 1). Each indicator articulates a central focus of city resilience (column 2). Through our frame analysis, we have identified those idea elements embedded in each indicator that pertain to inequality, such as metaphors, symbols, images, illustration, and catchphrases (column 3). Additionally, in answer to our first research question – how Rockefeller/Arup theorize and legitimate inequality as a relevant factor in city resilience strategies – we identified, for each indicator, how inequality relates explicitly or implicitly to the chronic stressors and shocks that underlie each of the 12 identified indications of resilience (column 4). Finally, we address how Rockefeller/Arup make the case, with respect to each indicator, that inequality is relevant to city resilience (column 5).

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In particular, through the analysis of the underlying arguments of each indicator (e.g., Toulmin, 2003), we distilled and articulated Rockefeller/Arup’s central claims with regard to the role of inequality, as well as the implicit warrants for these claims. As explained in the methods section, we see these warrants as socially established arguments that Rockefeller/Arup deploy to legitimate tackling inequalities as a crucial element of city resilience in specific ways. Essentially, for each indicator, we asked: “What are potential reasons why this indicator is an essential feature of city resilience and why and how is inequality a relevant factor?” Accordingly, the reconstruction of warrants addressed our first two research questions: “How does City Resilience Index/Framework of Rockefeller/Arup theorize and legitimate inequality as a relevant factor in city resilience strategies and what aspects and kinds of inequality are rendered relevant in the framework?”

A first type of warrant suggests that tackling inequalities is necessary for city resilience as a way of ‘bolstering the weakest link’. It suggests that cities are only as resilient as their weakest members, and that their vulnerabilities may catalyze and amplify breakdowns for the
whole city. So, in order to strengthen the resilience of the whole system that is the city, it is necessary to bolster the weakest link. Doing so benefits all. Variations of this basic warrant are associated with several of the categories and indicators of resilience, capturing different ways in which the weakest link may be characterized. Specifically, the vulnerability of the weakest link may stem from inequalities in access to health care or other critical services, and to weaker coping skills. In light of the metaphor cited above that collectively the CRI’s indicators are tantamount to a “city’s immune system,” according to this warrant, bolstering the most vulnerable is essential to preserving the health of the city.

A second type of warrant implies an imperative for ‘closing gaps in and enhancing resourceful agency’. Warrants of this type share the underlying assumption that the better the access to economic opportunity and the more widespread the distribution of knowledge, skills, and access to critical information, the better positioned will be city dwellers, communities, and stakeholder organizations to cope with threats to the integrity of critical systems. City dwellers of all sorts need to be capable of flexible, resourceful agency. We find two variants of this warrant. The first addresses the individual level, stating that education, occupational training, and specialized civil defense training enhances an individual’s capacity to cope with stresses and shocks. The second applies the same logic to the city level, contending that an economically vibrant and financially healthy city is better able to mobilize financial and technical resources and foster intersectoral collaboration for resourceful agency. In contrast to the first type of warrant, this type suggests that inequalities are a barrier to implementing resilience strategies, since parts of the population – or the city itself – may lack the resources, skills, and/or information for coping with disruptions.

A third type of warrant prompts cities to ‘pool strengths through inclusiveness’. In a way, this type of warrant is a logical extension of the previous one. Once resourceful agency is more equally distributed across the city’s inhabitants, then collective and inclusive planning and coordination will make for more robust solutions and better coping during crises. While the previous type of warrant establishes the need for coping capacity, this one backs efforts to comprehensively harness such capacity. Its different variants establish, for instance, that the strength of cities depends on communities’ social cohesion – at times evoked as a cultivated propensity for volunteerism and pro-social behavior – while willing and effective collaboration requires access to a diverse pool of information. Together, knowledge, access to critical information, and empowered, pro-social participation reduces vulnerability. Widespread participation in planning increases the robustness and legitimacy of resilience
solutions. Again, inequalities (in terms of greater isolation, disempowerment, and restricted access to participation) are seen as barriers to robust resilience strategies.

The remaining three types of warrant relate to the city and its (material and immaterial) infrastructure as shaping the context for resilience. The fourth type of warrant requires ‘fostering trust in civil institutions’ and argues that collective adherence to rules and good governance enhances perceptions of fairness and safety, reduces uncertainty, cultivates mutual trust, and facilitates civic participation. In contrast, for example, discrimination in policing and law enforcement lowers trust and impedes civil engagement. Accordingly, this warrant implies that fair and equitable law enforcement and systems of justice are necessary for city resilience. The fifth type of warrant demands ‘integrated design and stewardship’. Poorly designed urban systems exacerbate inequalities and amplify vulnerability and exposure not only of particular groups within the city, but also ultimately of the city as a whole. Integrated design therefore means that infrastructure, land use planning, and regulations should be applied consistently throughout the city, preventing the environmental and economic degradation of areas that increases exposure and vulnerability. The sixth type of warrant suggests ‘harmonizing connectivity and informed responsiveness’ as a focus of resilience strategies. Robust systems provide widespread connectivity and access to critical information that enable individual and collective responding/adapting in appropriate ways. This means that every community should have access to critical ICT and transportation infrastructure; yet, lack of access to critical services is a fundamental aspect of urban inequality. Thus, these three final warrants engage inequalities as both targets of and barriers to resilience efforts. Reducing discriminatory law enforcement, for instance, may have a positive impact on other resilience challenges, like family stability and access to education, and is therefore a target. However, an increased trust in civil institutions may also facilitate the mobilization of collaboration across differences and social divides, which strengthens resilience programs and emergency response.

We conclude that the Index provides a ‘repertoire’ of warrants and related arguments for individual cities to draw upon when designing their resilience strategies. If the Index is coming to operate as a globally theorized template for understanding the interrelationship between resilience and inequality, then we should find traces of these warrants in the ways cities discursively ‘anchor’ the prescriptions embedded in the index’s performance indicators in their local urban spheres. As described in the methods section, we examined the inequality signature matrices of Glasgow and Rio de Janeiro for evidence of these warrants and the expected anchoring.
The Glasgow resilience strategy report

Glasgow’s resilience strategy encompasses about 100 pages and covers a broad variety of programs and projects directed at increasing city resilience. We identified five distinct action frames that position inequality as an element in the broader resilience efforts of the city. The signature matrix for the Glasgow strategy can be found in Table 2. Below, we briefly discuss our findings with regard to our remaining research questions.

How does Glasgow’s resilience strategy locate inequality in a nexus of broader grand challenges and link it to the shocks and stresses that threaten city resilience? Overall, its five action frames provide a nuanced and multifaceted anchoring of inequality in Glasgow’s resilience strategy. What we label the “tackling inequalities” frame presents inequality itself as a target of resilience efforts. This mirrors the fact that Glasgow’s main resilience challenges – as per their strategy report – are more social than environmental and relate directly to poverty (population loss, vacant and derelict land, a high rate of adults without formal qualification, high violent crime rates, and “fuel poverty” or households’ inability to pay for heating fuel). It is not surprising, therefore, that Glasgow employs an action frame that tackles inequality head on. Its remaining action frames highlight additional roles of inequality with regard to resilience challenges. The “Inequitable access/Fill service gaps” frame presents unequal access to essential urban infrastructure and critical services as long-term stressors that undermine resilience. Inequality in the form of deficits in mutual support networks and citizen engagement impede collective coping capacity according to the “Reducing debilitating isolation” frame. Inequality in terms of educational attainment fosters deprivation and poverty according to the “Development of individual resilient people” frame. The concentration of inequalities in some sectors of the city create urban blight, signaling the need to focus on “Priority Areas.” Glasgow’s resilience strategy report, in summary, puts inequalities front and center with regard to their most pressing resilience challenges. This suggests that tackling inequalities provides strong ‘leverage’ for addressing resilience challenges.

How does Glasgow’s resilience strategy integrate inequality in localized chains of cause and effect? In terms of causal relations and proposed solutions, the Glasgow strategy basically focuses on two related theorizations. On the one hand, unequal access to basic services and infrastructure exacerbates vulnerability and in turn heightens resilience
challenges. Addressing these inequalities requires that, as a first step, inequalities in access need to be systematically identified and measured (“gap analysis”), leading to the identification of priority areas with particularly pressing issues. The second step calls for interventions designed to “fill service gaps” (p. 39) and address the blight of derelict and vacant sites in priority areas of the city. City services need what the report calls “equality proofing”, and priority areas that are home to the most vulnerable communities can and should serve as “test beds” for developing integrated resilience planning. On the other hand, social isolation and exclusion, as well as disparities in education and employment, hamper citizens’ ability to cope with the stresses and shocks that they are subjected to. For this reason, interventions need to enhance social cohesion and participation levels. The Glasgow strategy is particularly explicit about empowering citizens. Local initiatives to empower community leaders and foster volunteerism are meant to improve individuals’ and communities’ capacity to cope. The strategy argues that individual resilience will also improve through the more inclusive design of educational systems and other measures that prepare underequipped children and young people for participation in the community and economy. In summary, the local theorization of inequality with regard to resilience identifies inequalities in access to services and resources, inequalities in participation opportunities, and inequalities in cultivated coping skills as crucial factors hampering city resilience and suggests appropriate programs and actions as remedies.

How does Glasgow’s resilience strategy anchor its local theorization of inequality to the theorization of the Resilience Index? Glasgow draws selectively but comprehensively from the warrants provided by the Index. They make extensive use of the ‘Weakest Link’ warrant, which lends strong support and legitimacy to those action frames calling for the remediation of inequalities in access to basic infrastructure and skill development. If cities are only as resilient as their weakest members, then inequalities threaten everybody and need to be given priority – especially with regard to priority areas where urban blight, the strategy argues, saps the motivation to end social isolation. Inequalities in the ability to cope or participate in community action draw on the warrants of ‘Resourceful Agency’ and ‘Pooling Strength’, which suggest broad distribution of knowledge, skills, information, and opportunity, as well as collective and inclusive action are all requirements for resilience. Additionally, ‘Design and Stewardship’ warrants stress the necessity of integrated designs and solutions in terms of urban systems and infrastructure. Such a systems-thinking approach further bolsters ‘Weakest link’ warrants in their demand for creating more equal levels of robustness and resilience across communities. Finally, the “Priority Areas” frame also relates
to the ‘Trust in Civil Institutions’ warrant, since areas of the city affected by urban blight are also in need of restored trust. The Glasgow resilience strategy, accordingly, manifestly builds on the warrants we find in the Index, translating them to the specifics of the local contexts and the city’s peculiar resilience challenges.

**The Rio de Janeiro resilience strategy report**

Rio’s resilience strategy is about the same length as Glasgow’s (about 100 pages). It differs from Glasgow’s, however, it that has fewer and more restricted inequality frames. More specifically, our analysis revealed only three distinct actions frames that relate to inequality as a factor in city resilience. Table 3 presents the signature matrix for Rio. Again, we briefly discuss our findings below in terms of the remaining research questions.

How does Rio de Janeiro’s resilience strategy locate inequality in a nexus of broader grand challenges and link it to the shocks and stresses that threaten city resilience? In Rio’s inequality signature matrix, one action frame explicitly hinges on the vivid idea that Rio comprises “different cities for different citizens”. These different cities are characterized, for instance, by disparities in health care, sanitation, measures of human development and wellbeing, and life expectancies, as well as unequal access to transportation, means for cultural expression, sports, education, and employment. Such inequalities exacerbate other resilience challenges, such as, for instance, increased exposure to disease vectors and the risk of epidemics. A second action frame (“Suffering the most impact”) focuses on inequalities in exposure and vulnerability to threats. Highly vulnerable communities bear the impacts of chronic stressors and shocks sooner, more dramatically, and longer than others. Such shocks and stressors include heat waves, drought, and shortage of potable water. A third action frame (“Foster greater resilience in vulnerable communities”) states that poor and vulnerable communities tend to be less prepared and have less capacity to respond adequately to crisis situations. This is partially due to a lack of social cohesion and of a sense of ownership in decision making. These factors make it harder to engage these communities in resilience efforts. In summary, the resilience strategy of Rio strongly focuses on the ‘fault lines’ dividing the city, and the ways in which such inequalities exacerbate other resilience challenges, while speaking less clearly to ways of empowering the citizenry and spanning the faults than does the Glasgow strategy.
How does Rio de Janeiro’s resilience strategy integrate inequality in localized chains of cause and effect? The two theorizations found in the Glasgow resilience strategy also appear in the Rio strategy, albeit with distinctly different foci and different levels of elaboration. The pronounced exposure and vulnerabilities of communities in the marginalized spaces of the city exacerbate economic degradation, not only perpetuating inequality but widening the gap between the more and the less affluent communities. Since vulnerability is often coupled with a lack of coping skills, the situation will gradually worsen rather than remedy itself. Similar to Glasgow, the social divide that characterizes the city requires adequate and rigorous techniques of mapping vulnerabilities across the city and defining priority target regions. Solutions also need to take the distinct realities of different communities into consideration when tailoring interventions to the specific needs and conditions of these spaces of vulnerability and exposure. Initiatives geared towards ‘upgrading’ infrastructure in such regions need to be ‘transversal’ (i.e., intersectoral and interdisciplinary) and aimed at integrating the favelas into the formal city. The lack of resources and coping skills among residents of the favelas are themselves barriers to participating in efforts to enhance city resilience and so need addressing. Areas with high exposure are often characterized by social division, poverty, and a pervasive lack of community engagement. Resilience efforts, accordingly, not only need to reshape the infrastructural context, but also remove barriers to an empowered citizenry, until everyone will be prepared to deal with resilience challenges and crises.

How does Rio de Janeiro’s resilience anchor its local theorization of inequality to the theorization of the Resilience Index? The way in which the Rio strategy draws from warrants offered in the Index strongly resembles our findings regarding Glasgow, but is considerably less diverse in terms of the types of warrants used. ‘Weakest link’ warrants and ‘Pooling Strengths’ warrants predominate, supported by ‘Resourceful agency’ warrants. The general ideas are the same between the two cities. Vulnerable communities need to be bolstered lest the whole city become more exposed to resilience threats. Additionally, these vulnerable communities, and their members, all need more robust resourceful agency and greater capacity to participate in collaborative resilience efforts across communities and sectors. Again, inequality appears as both a target of and a barrier to systematic and successful resilience efforts.
Preliminary interpretation of findings

As a first preliminary finding, we see that inequality is – in different ways – part of all dimensions of resilience as defined by the 12 constituent indicators of the Index. Inequalities of different kinds are implicated across the board in city resilience, even though the Index does not explicitly mention inequality across all of the indicators. Our articulation of the warrants underlying the claims of the Index revealed that inequality is a crucial, albeit it at times only implicit, aspect of the Rockefeller/Arup theorization of city resilience.

Second, we found that the two cities in our exploratory sample each provide action frames that anchor theorizations of inequality in the specific local context of the city, e.g., Rio in the juxtaposition of favelas with the formal city, and Glasgow in its attention to post-industrial urban blight. Such translations (e.g., Wedlin & Sahlin, 2017) show interesting similarities and differences between cities in how they draw on and adapt the Index. What both cities have in common is that their local translations pinpoint disparities in resilience across regions of the city. Whereas Glasgow identifies priority areas within the city where resilience is particularly low, Rio establishes that there are different cities for different citizens. Both framings point at the importance of place-based resilience challenges and inequalities. However, while Glasgow treats inequality as an explicit and central target of resilience efforts, focusing on inequalities in access to critical services, infrastructure, ability to benefit from economic participation, and coping skills, Rio focuses more on pronounced differences in vulnerability to environmental changes and shocks and the emergence of distinctly different realities for specific groups. What this shows is that cities do not simply imitate or adopt the theorization offered by the Index, but instead anchor such theorization in the specifics of their local situation, focusing on what they regard to be the most pronounced resilience challenges. While this is of course a goal of the 100 RC Challenge, it means that inequality does not have a clear position in the theorized causal chains (e.g., Strang & Meyer, 1993) found in the Index, but instead takes on different roles depending on the particular resilience challenge. We have shown, for instance, how inequality is a target of resilience efforts when it relates to differences in access and vulnerabilities – particularly when the ‘weakest link’ warrant is invoked. It becomes more of a barrier to resilience efforts when it concerns unequally distributed capacities and willingness to participate in these resilience issues.

We started our paper with the question of how cities theorize and locate the topic of inequality in their resilience strategies in ways that can mobilize stakeholders for collaboration in addressing resilience challenges. We argued that in order to do so, the action
frames presented in resilience reports need to present plausible visions of the future and compelling incentives to collaborate in resilience efforts. In particular, these mobilization frames need to credibly commit the city to working across differences and existing divisions in ways that also enable marginalized groups to cultivate resourceful agency, to have voice, and to trust in government and society institutions. Building on our preliminary findings, we suggest that the Glasgow’s resilience strategy comes closer to this ideal than Rio’s. Glasgow’s action frames more compelling make citizen empowerment, the reduction of social isolation, and enhancement of social cohesion more central in ways that would plausibly increase the distribution of resourceful agency across the city and enable greater mobilization for resilience. In addition, Glasgow’s express commitment to work with and for groups living in “test bed” areas to address skill deficiencies and stem isolation and urban blight resonates with all three of the strategies for robust action identified by Ferraro et al (2015): participatory architectures that foster prolonged engagement; multivocal inscription that enables diverse yet coordinated courses of action; and experimentation that makes for distributed learning and fosters ongoing engagement among diverse stakeholders.

Finally, we believe that – in theorizing inequality as part of city resilience – neither Rockefeller/Arup in their Index, nor the two cities in our explorative sample, rely on strongly and explicitly ideological framings. Instead, their arguments build primarily on rationalization strategies (i.e., legitimation by reference to the utility of specific actions based on knowledge claims that are accepted in a given context; Vaara & Tienari, 2008; see also van Leeuwen & Wodak, 1999), and on broadly shared warrants that are firmly established culturally and come close to the status of ‘truisms’. According to rhetorical theory (e.g., Kienpointner, 1992; Rubinelli, 2006), such basic warrants are general ‘topoi’ (see also Höllerer et al., 2013), ready-made foundations for arguments that are so thoroughly rooted in the cultural fabric of a community that they can hardly ever be disputed at all. Through such reliance on rational and formal argument, as well as the use of general topoi, we suggest that both Rockefeller/Arup as well as adopting cities aim at addressing inequality without provoking resistance, primarily through ‘ideological sanitizing’ and ‘defanging’ of the potentially controversial issue of ‘inequality’.

**DISCUSSION**

We began with the question of how cities – under the guidance of a global NGO – theorize and locate the concept of inequality in their resilience strategies in ways that can mobilize stakeholders for collaboration in addressing resilience challenges. In order to do so, we
conducted a frame analysis of the Rockefeller/Arup City Resilience Index to uncover how its constituent indicators makes implicit and explicit assumptions and claims as to how inequality factors into or is otherwise linked to resilience challenges. Based on this frame analysis, we identified a set of underlying warrants. We then conducted frame analyses of the resilience strategy reports of two cities participating the 100 RC Challenge, focusing on passages we had identified, through lexical analysis, as pertaining to inequality. We identified the set of action frames that each constructed – through their production of their resilience strategies as a part of the 100 RC Challenge – and find that in each case, the city invoked a mix of the available warrants as they anchored their theorization of inequality in their distinct local realities. From our findings, three interrelated strategies of theorizing and mobilizing for inequality emerge. We suggest that these aspects extend previous research on tackling inequality as a grand challenge (e.g., Ferraro et al., 2015; Mair et al., 2016).

First, we witness the creation of city resilience as a robust and consensual concept. Whereas inequality is a hotly debated topic, discourses that legitimate it abound, e.g., the ideology of meritocracy, institutionalized classism; these make any action to tackle it inherently conflictual (e.g., Amis et al., 2017). Interweaving inequality with city resilience creates a more consensual theorization of the issue. As Gamson (1992; see also Meyer, 2004) notes, consensus frames which develop a shared identity without clearly defining opponents do not immediately trigger ready-made counter-frames. In addition, the idea of city resilience, in particular, entails multivocal inscription (Ferraro et al., 2015) to a high degree. The different warrants underpinning the Index offer substantial synergies and the possibility of commensurability (e.g., Meyer & Höllerer, 2016) between different interests, which makes it hard to actually oppose the idea of a resilient city. Such consensual and synergistic theorization in effect banishes potential opponents from the discussion (for example, the rent seekers who traditionally profit from environmental degradation or illicit land use), making city resilience seem improbably uncontroversial and apolitical. Still, the issue of inequality is so firmly and thoroughly implicated in almost every aspect of resilience that achieving resilience without tackling inequality seems next to impossible. This makes the concept of resilience itself seem almost above politics even if the associated deployment of resources and mobilization for intersectoral collaborations are inevitably political accomplishments.

Second, the rationalization and ideological ‘defanging’ of the potentially contested issue of inequality furthers the seemingly uncontestable incorporation of inequality into resilience strategies. Mair et al. (2016) suggest ‘concealment’ as a central aspect of “scaffolding” processes needed for tackling inequality in village contexts. In their research,
concealment involves focusing attention on a shared and uncontested goal, a clean water project, in order to deflect elite attention from the ways in which working toward that goal alters the patterns of interaction that serve as the microfoundations of inequality, thereby potentially undermining the elite’s class privilege. In a sense, what we find in our data resonates with but differs from such concealment. Neither the Index nor the city resilience strategies avoid talking about inequality. However, they eschew an explicit ideological argument (e.g., equality as a desired end in itself) in favor of rationalization strategies. They make addressing specific manifestations of inequality, like lack of access to sanitation, a central ‘cog’ in achieving the more consensual objective of city resilience. Most importantly, they depict mitigating inequality as a source of leverage in overcoming a variety of other resilience challenges. Essentially, the Index supplants political problems (based on potential divergent interests and antagonistic ideologies) with technocratic problems (based on means-ends relations to achieve an unquestioned goal). Such a technocratic perspective lends itself to multivocal inscription (Ferraro et al, 2015), or the writing of inequality into the city resilience action frames in many ways that speak to and mobilize diverse constituencies with requiring consensus. Ferraro et al (2015) argue that this is a core strategy for robust action in response to grand challenges. Ideological defanging and the pronounced absence of the political sphere eliminate discourses of meritocracy and of the capitalist benefits of self-seeking that traditionally serve to legitimate inequalities (e.g., Amis et al., 2017).

Third, the theorization occurring both in the Index and in the cities’ resilience strategies supports mobilization through plausible visions of inclusive collaboration in multiple ways. The Index itself, especially in the category of ‘Leadership & Strategy’ mandates convening stakeholder engagement across differences as both a prerequisite for and essential ongoing attribute of city resilience. In this sense, mobilization (Mair et al., 2016) and participatory architecture (Ferraro et al., 2015) become core features of the concept of resilience itself. As a consequence of the strategy-making processes and use of the index mandated under the 100 RC Challenge, cities are more apt to seek locally feasible ways to ensure broad stakeholder engagement in their resilience efforts. Although an analysis of the resilience strategies alone does not enable assessing whether such “participatory architectures” at the city level actually enable “heterogeneous actors to interact constructively over prolonged timespans,” the 100 RC network itself represents such a participatory architecture and the sheer amount of “distributed experimentation” that it fosters as 100 cities around the globe test resilience ideas in ‘localized laboratories’ (see, for instance, the ‘test bed’ areas in the Glasgow strategy)
makes it plausible that some kind of institutional change is going to happen across the whole network (Ferraro et al., 2015:11).

**Further steps**

Of course, the preliminary nature of the current explorative study makes for substantial limitations. On the one hand, the study needs to be expanded to include more data. We have started with two cities that are quite distinct from each other in terms of the resilience challenges they face. Such differences manifest in the action frames of their respective resilience strategies. In the next step, we will extend the analysis to our full sample of seven cities so as to: have both OECD and non-OECD members, cover as many continents as possible given the currently available cities (no African cities had disseminated their strategies yet), and have a mix of linguistic communities (English, Spanish, Arabic, and one Asian language). We expect this larger sample to provide additional action frames and distinct ways of drawing on the warrants provided in the index. It will also be interesting to see whether the strategies of rationalization and ideological sanitizing persist throughout a larger sample of resilience strategies.

On the other hand, our coding has, so far, only considered part of the meaning construction happening in the resilience strategies – verbal texts pertaining to inequality. However, communication genres such as websites, magazines, or strategy documents increasingly go beyond purely verbal forms of representation, and instead are characterized by elaborate orchestrations of verbal and visual rhetoric (Kress, 2010). Consequently, Meyer and her colleagues (2013; see also Jones, Meyer, Jancsary, & Höllerer, 2017) point out that today we cannot view visual text as some sort of add-on that dresses up verbal texts; as a result, scholars need to address how visualization and visual artifacts have become crucial tools in the construction, maintenance, and transformation of the meanings and beliefs that shape choices and actions.

In terms of our project – an exploration of how cities locate inequality in their resilience strategies – a number of specific characteristics of multimodal texts seem particularly relevant. First, the use of multiple modes facilitates the activation of multiple forms of knowledge, including embodied, aesthetic, and affective knowledge – or in other words, ‘elusive knowledges’ – much better than verbal text alone (Toraldo, Islam, & Mangia, 2016). This capacity to activate elusive knowledges is vitally important for mobilizing collaboration across differences since different modes respond to and draw on distinct ‘literacies’ in ways that may reach different constituencies. For example, previous research has found that the
verbal mode disfavors those parts of a society or community that may be lacking in verbal eloquence (e.g., Warren, 2005), while multimodality allows for addressing divergent audiences in more inclusive ways.

Second, visuals add to the verbal in situating ideas and practices in specific cultural contexts; and support robust action through their multivocality. Regarding the former, Höllerer and colleagues (2013; see also Kamla & Roberts, 2010) claim that visual rhetoric is particularly useful for connecting and re-contextualizing novel ideas and practices in ‘what’s already there’. The combination of verbal and visual text, accordingly, facilitates communicating complex and multifaceted ideas like city resilience, particularly for local audiences and constituencies. Concerning the latter, visual text within multimodal compositions often remains underneath the ‘radar of control’ (e.g., Meyer et al., 2013; Kress & van Leeuwen, 2006). Flying under the radar may mean not only that visuals can therefore be used to purposefully transport messages that could not be verbalized for various reasons (McQuarrie & Phillips, 2005). It may also mean that visuals facilitate the creation of a communicative space where yet unspoken ideas and unheard and even silenced constituencies may find a voice.

Third, multimodality provides additional ways of creating plausibility and credibility across diverse constituencies, which is vital for resilience strategies not to be understood as largely ‘glossy advertising’. In their study of the media discourse on the Global Financial Crisis, Höllerer, Jancsary, and Grafström (2017) find that visuals interact with verbal text in supporting both the credibility and comprehensibility for complex ideas. They do so, on the one hand, by firmly anchoring complicated concepts in perceivable socio-material reality (i.e., materializing them), but also by evoking commonly established and highly favorable societal myths that support arguments. Additionally, they also bring both past and future into the present by providing visual ‘proof’ that something has happened (e.g., through photographs) and creating plausible accounts that something is likely to happen in the future (e.g., by photomontages, diagrams, and virtual simulations). Together, these recognized affordances seem to provide a perfect supplement to verbal text in the social construction of city resilience.

Accordingly, we expect additional rhetorical strategies to emerge when our frame analysis also considers the visual part of the cities’ framing efforts and, in particular, the interaction between the two different modes.
Concluding remarks

Our underlying assumption has been that a city’s distinct manifestations of inequality could make difficult the successful mobilization of diverse constituencies for the prolonged, constructive engagement said to be a building block of robust action around grand challenges. By offering a comparative picture that crosses cultural contexts, we hope to enhance our understanding of how global resilience frames intersect with cities’ locally constructed understandings of inequality and aspirational narratives of inclusion and the cultivation of resourceful agency. One of the Rockefeller Foundation’s explicit concerns regarding resilience was that realistic solutions developed at the city level were not scaling. Recent research on inequality has offered important insights into scaffolding for inequality at the micro level. Thus, we hope that a cross-cultural examination of city resilience strategies contributes to our understanding of how distributed experimentation can develop new ways of scaling solutions.

References


Table 1: Dimensions of Inequality in the Resilient Cities Index

<table>
<thead>
<tr>
<th>“Fundamental attributes” of a resilient city: Four Categories/12 Indicators</th>
<th>Central Focus</th>
<th>Examples of Idea Elements: Metaphors, symbols, images, illustrations, catchphrases, etc.</th>
<th>How inequality figures in the impact of chronic stressors or shocks</th>
<th>Rockefeller’s Essential Claims and Underlying Warrants about Resilience</th>
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<tbody>
<tr>
<td>Health &amp; Well Being</td>
<td>Ensuring the health and wellbeing of everyone living and working in the city</td>
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<tr>
<td>1. Minimal Human Vulnerability</td>
<td>Extent to which everyone’s basic needs are met Universal right to meeting of basic needs</td>
<td>Adequate, dependable, accessible, affordable</td>
<td>Chronic stressors: Basic needs are unaffordable or are otherwise unmet, e.g., potable water, sanitation, housing, energy</td>
<td>Ia: ‘Weakest link’ (resources) Resilience is stronger when resources for survival are sufficient and equally distributed. <strong>Warrant:</strong> Inequalities in the coverage of basic needs open the door for additional challenges (epidemics, social unrest, etc.).</td>
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<td></td>
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<td>Inclusive plans for ensuring daily minimum supply of basis assets: shelter, food, water, sanitation</td>
<td>Chronic stressors: Segments of population lack ability to meeting basic needs. Shocks: Some segments more vulnerable to disruptions</td>
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<td></td>
<td></td>
<td>Particularly in extreme circumstances</td>
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<td>2. Diverse Livelihoods and Employment</td>
<td>Access to finance, ability to accrue savings, training, business support, and social welfare</td>
<td>Secure, long-term livelihoods that enable meeting basic needs, accruing savings, and surviving crises</td>
<td>Chronic stressors: disparities in skills, opportunities, development/education, and financial resources &amp; slack assets</td>
<td>IIa: ‘Resourceful agency’ (individual) Resilience is stronger when people have the capacity and resources to help themselves. <strong>Warrant:</strong> Persons that are educated and trained for a variety of occupations have enhanced coping capacities in times of crisis.</td>
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<td>Diverse opportunities, support mechanisms, development programs &amp; opportunities</td>
<td>Chronic stressors: inability to participate effectively and equitably in the economic</td>
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<td>Skills and abilities for proactive responses to changing conditions</td>
<td>Shocks: lack of savings, accumulated resources, and coping skills renders some groups more vulnerable</td>
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<td></td>
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<td>Unlimited access to legitimate occupations, free of all types of discrimination</td>
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<td>3. Effective Safeguards to Human Health and Life</td>
<td>Integrated health facilities, services, and responsive emergency services</td>
<td>Accessible, affordable health care appropriate to diverse populations</td>
<td>Chronic stressors: Disparities in education/skills for healthy living and prevention of illnesses</td>
<td>Ib: ‘Weakest link’ (health) Resilience is stronger when all citizens are healthy and have access to health care. <strong>Warrant:</strong> Inequalities in health coverage open the door for additional challenges (epidemics, social unrest, etc.).</td>
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<td>Targeted public health practices and services fostering prevention and timely responses</td>
<td>Chronic stressors: Lack of access to adequate health systems/services; differences in exposure to health risks</td>
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<td>Inclusive public health management</td>
<td>Shocks: Differences in communities’ vulnerability to health crises and pandemics</td>
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<td>Availability of emergency systems and practitioners</td>
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<td>Economy &amp; Society</td>
<td>Social and financial systems that enable urban populations to live peacefully and act collectively</td>
<td>IIIa: ‘Pooling strength’ (solidarity)</td>
<td>Warrant: The strength of cities depends on social cohesion, since division weakens the fabric of the city.</td>
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<td><strong>4. Collective Identity and Mutual Support</strong></td>
<td>Active community engagement, strong social networks, and social integration</td>
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<td></td>
<td>• Strong cultures and shared identities&lt;br&gt;• Strong relations, mutual trust that foster ability to “face unforeseen circumstances together without civil unrest or violence?”&lt;br&gt;• Collective “bottom-up” ability to “improve environment”&lt;br&gt;• Systems and facilities that promote participation, engagement, collective resourcefulness, and integration</td>
<td>• Chronic stressors: Differences in levels of cohesion that make for peaceful, effective, collective coping&lt;br&gt;• Chronic stressors: Lack of access to systems and facilities that cultivate cohesion&lt;br&gt;• Shocks: underdeveloped collective coping skills</td>
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<td><strong>5. Comprehensive Security &amp; Rule of Law</strong></td>
<td>Law enforcement, crime prevention, justice, and emergency management</td>
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<td>• Fair, responsive policing and prevention; transparency and equitable justice systems; civic education;&lt;br&gt;• Trust in city authorities and legal institutions&lt;br&gt;• Safety and security</td>
<td>• Chronic stressors: Exposure to crime, unfair policing, or discriminatory justice systems that destabilize communities&lt;br&gt;• Chronic stressors: Historical or ongoing patterns of untrustworthy policing or justice systems; vulnerability to crime and threats to safety&lt;br&gt;• Shocks: threats of disparate localized failures in crime prevention, safety and emergency management</td>
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<td><strong>6. Sustainable Economy</strong></td>
<td>Sound city finances; diverse revenue streams; ability to attract investment, allocate capital and build emergency funds</td>
<td>• Chronic stressors: differential community access to finance resources and in accumulation of slack resources&lt;br&gt;• Chronic stressors: disparities in ability to benefit from the economy or government spending&lt;br&gt;• Shocks: lack of emergency funds for coping with contingencies</td>
<td>IIIb: ‘Resourceful agency’ (city)&lt;br&gt;Resilience is stronger when the city is economically robust, financially sound, and resourceful.</td>
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<td>Infrastructure &amp; Ecosystems</td>
<td>Built and natural systems that provide critical services and protect and connect urban citizens</td>
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<td><strong>7. Reduced Exposure and Fragility</strong></td>
<td>Environmental stewardship, appropriate infrastructure, effective land use planning and enforcement of planning regulations</td>
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</table>
| | • Integrated urban systems  
• Protective infrastructure and safe built environments  
• Robust environmental policies  
• Building codes and standards, sound environmental policies |
| | • Chronic stressors: Increased vulnerability of neighborhoods due to substandard building and land use enforcement |
| | **V: ‘Design and Stewardship’**  
Resilience is stronger when cities’ “ecosystems and built infrastructure [are] designed as integrated urban systems” which minimize environmental impact and threats to the continuity of critical services to all.  
**Warrant:** Poorly designed urban systems exacerbate inequalities and amplify vulnerability and exposure of the city as a whole. |
| **8. Effective Provision & Continuity of Critical Services** | Diversity/redundancy in services, contingency planning, and active management and maintenance of ecosystems and infrastructure |
| | • Quality and performance through proactive management & maintenance  
• Enhanced managerial knowledge of complex systems  
• Community education for wise actions, management, monitoring, and renewal  
• Intelligent technologies for monitoring asset integrity, performance |
| | • Chronic stressors: disparities in communities’ education, training, and ability to interpret and apply information  
• Chronic stressors: Disparities in performance management across communities  
• Shock: Disparities in coping skills during interruptions and crises |
| | **Ic: ‘Weakest link’ (service provision)**  
Resilience is stronger when cities build infrastructures that guarantee continuity of critical service to all citizens that support widespread coping during crises.  
**Warrant:** Inequalities in access to critical services, learned coping skills, and access to necessary information leave some groups less prepared thereby threatening the survival of the whole system. |
| **9. Reliable Mobility & Communications** | Diverse & affordable multi-modal transport systems, information and communication technology (ICT) networks coupled with contingency planning |
| | • Connectivity, transport links, reliability communications and mobility  
• Reliable and inclusive focus of communication and access to information in emergencies |
| | • Chronic stressors: disparities in access to and learned ability to interpret and use information  
• Chronic stressors: differences in investment in transit and communication infrastructures across communities  
• Shocks: Disparities in access to critical information in crisis |
| | **VI: ‘Connectivity and informed responsiveness’**  
Resilience is stronger when systems of transportation and communication are robust and reliable, available to all, and conducive to effective response in crises.  
**Warrant:** Robust systems provide equal connectivity and access to critical information that enable individual and collective responding/adapting in appropriate ways. |
### Leadership & Strategy

**Answering the need for informed, inclusive, integrated, and iterative decision-making in cities**

<table>
<thead>
<tr>
<th>10. Effective Leadership and Management</th>
<th>Government, business and civil society are characterized by trust, multi-stakeholder consultation, and evidence-based decision-making</th>
</tr>
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</table>
|                                        | • Trust, unity, shared understandings  
|                                        | • Attention to “grass-roots knowledge” of “local challenges”  
|                                        | • Strong local government with stakeholder input  
|                                        | • Chronic stressors: Exclusion from representation in governance or participation in decision-making; absence of consultation  
|                                        | • Chronic stressors: Exclusion from cross-sector collaborations or networks  
|                                        | • Shocks: Inability to leverage civil society to coordinate people or mobilize resources in times of need |
|                                        | IIIb: ‘Pooling strength’ (diverse engagement)  
|                                        | Resilience is stronger when leadership fosters trusting, broad and diverse participation in planning, decision-making, collaborative initiatives, and governance.  
|                                        | **Warrant:** Willing collaborative mobilization and response require a diverse pool of informations and inclusive and decentralized decision-making. |

<table>
<thead>
<tr>
<th>11. Empowered Stakeholders</th>
<th>All constituencies have access to up-to-date information and knowledge that enables taking appropriate action</th>
</tr>
</thead>
</table>
|                            | • Research, data collection, and risk monitoring  
|                            | • Integrated, multi-stakeholder decision-making  
|                            | • Educated and informed citizens able to use information to protect themselves in emergencies  
|                            | • Information exchange, feedback loops, learning and adaptation  
|                            | • Chronic stressors: Disparities in education and access to information, exclusion from information networks  
|                            | • Chronic stressors: Disparities in coping skills  
|                            | • Shocks: Inability to access make educated use information during emergencies |
|                            | IIIc: ‘Pooling strength’ (strength in numbers)  
|                            | Resilience is stronger when everybody is well prepared to respond effectively in crises.  
|                            | **Warrant:** The better equipped all constituencies and the broader their informed participation, the less vulnerable the system. |

<table>
<thead>
<tr>
<th>12. Integrated Development and Planning</th>
<th>Shared vision; integrated, well-developed strategies; regularly reviewed plans; and cross-departmental collaborations</th>
</tr>
</thead>
</table>
|                                        | • Stakeholder involvement in “designing and implementing projects”  
|                                        | • “Ongoing processes of communication at all stages of planning.”  
|                                        | • Enforcement of land use plans and codes  
|                                        | • City programs and projects are “mutually supportive,” reflect learning from experience, and cultivate broad-based resourcefulness for facing uncertainties  
|                                        | • Chronic stressors: Disparities in involvement in planning and in benefiting from programs and projects |
|                                        | IIId: ‘Stronger together’ (broad legitimation)  
|                                        | Resilience is stronger the broader the participation in the continuous renewal of strategic plans.  
<p>|                                        | <strong>Warrant:</strong> Widespread and diverse participation in ongoing design and implementation makes cities critical systems and governance more robust. |</p>
<table>
<thead>
<tr>
<th>Action Frame</th>
<th>“Tackling inequalities”</th>
<th>Inequitable access/“Fill service gaps”</th>
<th>Reducing Debilitating Isolation; Bolstering community empowerment</th>
<th>“Our golden thread:” “development of individual resilient people”</th>
<th>“Priority Areas” “Test beds for an integrated resilience planning approach”.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Examples of Idea Elements</td>
<td>“fairer, more just place” (p. 4)</td>
<td>Access to “high quality services” … “differ greatly between neighborhoods”</td>
<td>Physical and social barriers to connectivity, poor public transport</td>
<td>Personal resilience “ties together all our strategic initiatives” (p. 74)</td>
<td>Addition and mental health issues</td>
</tr>
<tr>
<td>Metaphors, symbols, images, illustrations, catchphrases, etc.</td>
<td>“enough equal opportunities”</td>
<td>Fostering well-being</td>
<td>Social isolation</td>
<td>Digital skills</td>
<td>Blighted landscapes</td>
</tr>
<tr>
<td></td>
<td>“our least well off at the heart of our thinking” (p. 4)</td>
<td>healthy food, affordable services, health and social care, neighborhood disparities,</td>
<td>Community Empowerment Act,</td>
<td>youth development,</td>
<td>District-based smart solutions and innovation</td>
</tr>
<tr>
<td></td>
<td>“profound disparities in income, health, and opportunity” (16)</td>
<td>“equality proofing” services,</td>
<td>Volunteering, connecting</td>
<td>economic interventions</td>
<td>Crime and anti-social behavior</td>
</tr>
<tr>
<td></td>
<td>“chronic stresses … particularly those relating to poverty and inequality” (p. 27)</td>
<td>“gap analysis,”</td>
<td>Educated and engaged stakeholders, community participation</td>
<td>personal resilience,</td>
<td>Social isolation</td>
</tr>
<tr>
<td></td>
<td>“closing the inequality gap” (p. 24)</td>
<td>derelict lots</td>
<td>autonomous and resourceful communities</td>
<td>meaningful and fulfilling employment, sense of worth,</td>
<td>Integrative solutions</td>
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<tr>
<td></td>
<td>“disproportionate stresses … related to the post-industrial legacy of the area”</td>
<td>new “models of childcare, elderly care” to mitigate impact on employment and poverty</td>
<td>Developing community leaders,</td>
<td>support businesses to grow</td>
<td>Stakeholder empowerment</td>
</tr>
<tr>
<td></td>
<td>Youth lacking in the “skills required by our community and businesses”</td>
<td></td>
<td>Localized schemes/solutions</td>
<td>Addition/</td>
<td>Place-based solutions</td>
</tr>
<tr>
<td>2. Problem definition</td>
<td>Responsive to RQ: How does the resilience strategy locate inequality in a nexus of broader grand challenges and link it to the shocks and stresses that threaten city resilience?</td>
<td></td>
<td>clear lines of communication</td>
<td>“strong collaborative capacity”</td>
<td>Disparities in educational attainment foster deprivation and poverty. Inequality found being unprepared for life.</td>
</tr>
<tr>
<td>How is inequality a problem?</td>
<td>Poverty/inequality are in themselves barriers to wellbeing and resilience</td>
<td>Unequal access to basic infrastructure, quality social services, and childcare/elder care has contributed to long-term stressors, thereby undermining resilience</td>
<td>Physical and social isolation, chronic social ills, lack of “pride of place” combine to demotivate residents’ efforts to connection to the city’s centers of opportunity. Poorer communities suffer deficits in mutual support networks and citizen engagement.</td>
<td>Chronic stressors and blight are particular debilitating for some sectors of the city, fueling fear, social isolation, educational underachievement, and economic disengagement.</td>
<td></td>
</tr>
</tbody>
</table>
3. Problem Elaboration

<table>
<thead>
<tr>
<th>Diagnosis (Who or what is responsible?)</th>
<th>The city needs “equitable access to quality services that fosters wellbeing” (p. 39)</th>
<th>Social exclusion of certain groups and other barriers to participation erode community cohesion and block groups access to and collective ability to use resilience resources.</th>
<th>“The link between poverty and deprivation and educational attainment is well known.” (p. 38) Disparities in education and employment/entrepreneurial opportunities decrease personal resilience and sense of worth.</th>
<th>Focusing on blight, socially isolated areas that demand integrated “place-based” solutions will provide exemplars that bolster critical learning and intersectoral collaboration.</th>
</tr>
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<tr>
<td>Prognosis (What can be expected without intervention?)</td>
<td>Without targeted efforts to reduce inequality and improve economic opportunity, the least well off and the city as a whole will not be resilient.</td>
<td>Without gap analysis and equity proofing inequitable access to services will persist, perpetuating chronic stressors.</td>
<td>To enhance resilience, cities need to build connection, trust, and participation/collaborative capabilities, with a focus on members of groups subject to inequalities. (p. 39).</td>
<td>Without adequate training and education programs, and without access to resources for entrepreneurship, poverty and deprivation will persist.</td>
</tr>
<tr>
<td>Motivation (What actions should be taken?)</td>
<td>Focus systematic, data-driven efforts to reduce inequalities that undermine wellbeing and resilience.</td>
<td>Programs that empower citizens, develop community leaders and facilitate volunteering ultimately increase coping skills. Creating opportunities for people “to get involved in the planning and delivery of local initiatives that make [their] neighborhood look and feel better” removes barriers to personal and group resilience. “Gap analysis” and responding to inequities in access to services depends on the input of skilled and engaged stakeholders, “with particular focus on groups subjected to inequalities.” (p. 39)</td>
<td>Cities need economic development and educational systems that ensure people of all ages, but particularly children and young people, are prepared for participating in the community and economy.</td>
<td>Make the most vulnerable communities laboratories and exemplars of integrated resilience planning. Address blight in ways that unlock the community, environmental, and economic potential of derelict and vacant sites.</td>
</tr>
</tbody>
</table>
### 4. Relationship to the Index

**Responsive to RQ:** How does the resilience strategy anchor its local theorization of inequality to the theorization of the Resilience Index?

<table>
<thead>
<tr>
<th>Weakest Links</th>
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<th>Resourceful Agency</th>
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<td><strong>IIa:</strong> Persons that are educated and trained for a variety of occupations have enhanced coping capacities in times of crisis.</td>
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<td><strong>11b:</strong> A city that is economical vibrant and financially well managed can foster intersectoral collaboration for resourceful agency.</td>
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<td><strong>IIIb:</strong> Willing collaborative mobilization and response require a diverse pool of informations and inclusive and decentralized decision-making.</td>
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<td><strong>IIa:</strong> Persons that are educated and trained for a variety of occupations have enhanced coping capacities in times of crisis.</td>
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<td><strong>V:</strong> Poorly designed urban systems exacerbate inequalities and amplify vulnerability and exposure of the city as a whole.</td>
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### Table 2: Inequality as threat to City Resilience in Rio de Janeiro

<table>
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<tr>
<th>Action Frame</th>
<th>“Different cities for different citizens”/ Taking into Account the Realities of Communities</th>
<th>Suffering the most impact / greatest economic and environmental degradation</th>
<th>Foster greater resilience in vulnerable communities lacking social cohesion, skills, and access</th>
</tr>
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<tr>
<td><strong>1. Examples of Idea Elements</strong>&lt;br&gt;Metaphors, symbols, images, illustrations, catchphrases, etc.</td>
<td>• “Different realities:” Favelas vs. the “formal” city&lt;br&gt;• Disparities in health care across districts&lt;br&gt;• Disease vectors, Tuberculosis, STDs, vaccination rates&lt;br&gt;• Poor sanitation&lt;br&gt;• Human Development Index/Social Progress Index&lt;br&gt;• Prenatal care, early childhood development, youth &amp; school enrollment&lt;br&gt;• Life expectancies</td>
<td>• Physiological stress&lt;br&gt;• Loss of productivity and income&lt;br&gt;• Greater exposure&lt;br&gt;• Heat islands/ heat waves&lt;br&gt;• Epidemics/pandemic&lt;br&gt;• Prolonged drought,&lt;br&gt;• Economic downturn&lt;br&gt;• Water management,&lt;br&gt;• Mosquitos &amp; water-borne diseases&lt;br&gt;• Unemployment&lt;br&gt;• Unsafe housing&lt;br&gt;• High risk areas/ landslides</td>
<td>• Carioca culture&lt;br&gt;• Local culture/social cohesion&lt;br&gt;• Strengthening “development and growth processes”&lt;br&gt;• “Sense of shared ownership in decision making” (p. 83)&lt;br&gt;• Limited range of systems and institutions&lt;br&gt;• disaster preparedness,&lt;br&gt;• Resilient Youth Program,&lt;br&gt;• Civil defense, prevention and risk mitigation&lt;br&gt;• Clarity/accessibility of information</td>
</tr>
<tr>
<td><strong>2. Problem definition</strong>&lt;br&gt;Responsive to RQ: How does the resilience strategy locate inequality in a nexus of broader grand challenges and link it to the shocks and stresses that threaten city resilience?</td>
<td>How is inequality a problem?&lt;br&gt;“Social inequality means there are different cities for different citizens. … The provision of services and economic opportunities are unequal, with insufficient access to sanitation, transportation, health services, culture, sports, education, and employment.” (p. 35)</td>
<td>Highly vulnerable communities bear the impacts of chronic stressors and the shocks sooner, more dramatically, and longer than others.</td>
<td>Poor and vulnerable people/communities tend to be less prepared, have less access to critical information, and know less about how to respond during crisis situations or disasters</td>
</tr>
<tr>
<td><strong>3. Problem Elaboration</strong>&lt;br&gt;Responsive to RQ: How does the resilience strategy integrate inequality in localized chains of cause and effect?</td>
<td><strong>Diagnosis (Who or what is responsible?)</strong>&lt;br&gt;Diagnosis: Rio comprises “different cities” in terms of living conditions and opportunities. “Prevention systems and victim epidemic treatment” are irregular across the metropolitan region.</td>
<td>Diagnosis: Insufficient access to basic services (sanitation, water, health care, and infrastructure) increases exposure to and recover time from shocks/chronic stressors.</td>
<td>Diagnosis: Residents of favelas are systematically underequipped in terms of preparing for or responding to crises situations.</td>
</tr>
<tr>
<td><strong>Prognosis (What can be expected without intervention?)</strong>&lt;br&gt;Prognosis: If unchanged, existing disparities/inequalities mean some communities remain much more vulnerable</td>
<td>Prognosis: Without improved access to critical basis services, these groups will continue to live in conditions making them unduly vulnerable to the greatest impacts.</td>
<td></td>
<td>Prognosis: Social division, poverty, and a lack of community engagement will continue to hamper resilience efforts and leave many groups vulnerable without action.</td>
</tr>
<tr>
<td><strong>Motivation (What actions should be)</strong>&lt;br&gt;Motivation: Solutions need to be tailored to target districts and target families. “Transversal” initiatives</td>
<td>Motivation: “Solutions require mapping and targeting regions most in need of improved access to critical elements.”</td>
<td>Motivation: Resilience requires removing barriers to an empowered citizenry. “All citizens will live in...”</td>
<td></td>
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4. Relationship to the Index

**Responsive to RQ**: How does the resilience strategy anchor its local theorization of inequality to the theorization of the Resilience Index?

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The University of Rhode Island is one of eight land, urban, and sea grant universities in the United States. The 1,200-acre rural campus is less than ten miles from Narragansett Bay and highlights its traditions of natural resource, marine and urban related research. There are over 14,000 undergraduate and graduate students enrolled in seven degree-granting colleges representing 48 states and the District of Columbia. More than 500 international students represent 59 different countries. Eighteen percent of the freshman class graduated in the top ten percent of their high school classes. The teaching and research faculty numbers over 600 and the University offers 101 undergraduate programs and 86 advanced degree programs. URI students have received Rhodes, Fulbright, Truman, Goldwater, and Udall scholarships. There are over 80,000 active alumnae.

The University of Rhode Island started to offer undergraduate business administration courses in 1923. In 1962, the MBA program was introduced and the PhD program began in the mid 1980s. The College of Business Administration is accredited by The AACSB International - The Association to Advance Collegiate Schools of Business in 1969. The College of Business enrolls over 1400 undergraduate students and more than 300 graduate students.

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Our responsibility is to provide strong academic programs that instill excellence, confidence and strong leadership skills in our graduates. Our aim is to (1) promote critical and independent thinking, (2) foster personal responsibility and (3) develop students whose performance and commitment mark them as leaders contributing to the business community and society. The College will serve as a center for business scholarship, creative research and outreach activities to the citizens and institutions of the State of Rhode Island as well as the regional, national and international communities.

The creation of this working paper series has been funded by an endowment established by William A. Orme, URI College of Business Administration, Class of 1949 and former head of the General Electric Foundation. This working paper series is intended to permit faculty members to obtain feedback on research activities before the research is submitted to academic and professional journals and professional associations for presentations.

An award is presented annually for the most outstanding paper submitted.