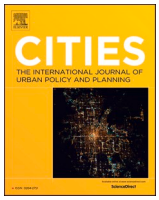
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Governing the resilient city: An empirical analysis of governing techniques

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ABSTRACT

Resilience is increasingly used as a new discourse for dealing with future shocks, crises and transition in urban governance. Although embraced in policy and academia, resilience is also severely critiqued as a continuation of neo-liberal thinking. To avoid the trap of imposing a meta-narrative on resilience, we argue that resilience should be treated as a 'matter of empirics'. Using a governmentality lens, we empirically investigate how the resilient city is governed in practice. Based on a multi-sited ethnography of resilience within the city of Rotterdam that joined the 100-RC initiative pioneered by the Rockefeller Foundation, we identify five governing techniques: anticipating, transcending, laboratizing, monitoring and responsibilizing. Our analysis shows that resilience discourse has the potential to be both progressive and cruel, depending on the techniques used and the interactions between them. Hence, how resilience is shaped not only depends on the individual techniques but also on their entanglements in practice.

1. Introduction

Increasingly, the concept of resilience is used to make uncertain futures and complexity actionable (Chandler, 2014). Originally, the concept was introduced in the 1970's, as a descriptive, ecological term defined as the *"measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables"* (Holling, 1973, p.14). Resilience quickly travelled across academic disciplines (e.g. ecology, psychology, sociology, organizational studies, urban studies) and policy domains (e.g. climate, social and health). Through its travels, resilience has gained new meanings, ranging from an individual capacity to cope with setbacks in life to collective mentalities of communities in bouncing back or even forward after crises and shocks (Walker & Cooper, 2011; Walklate et al., 2013). Regarding the latter cities are increasingly taken up as the loci of resilience, offering promissory local solutions for a broad range of pressing global problems.

Although the resilience discourse is increasingly embraced in both policy and academia, there is a growing scholarship that critiques resilience as a continuation of neoliberal thinking (Bracke, 2016; Davoudi, 2016; Halpern, 2017; Kaika, 2017). According to this critical line of reasoning, resilience is a neoliberal form of governmentality because of the displacement of responsibilities, away from the state towards individuals to perform public tasks in entrepreneurial ways. Instead of a radically new vision for governing, these scholars argue, the resilience discourse is 'old' neoliberal wine in 'new' resilient bottles.

In response to this critique, others have pointed out that we can neither assume that resilience is the new governance framework that will future-proof societies nor that resilience is a continuation of neoliberal governmentality (Howell, 2015; Joseph, 2016; Rose & Lentzos, 2017). To avoid the trap of imposing a monolithic meta-narrative on resilience, resilience should be treated as a 'matter of empirics' (Howell, 2015, p. 67) and be carefully researched as a concept 'on the ground floor' as it might 'provide handholds for a more progressive politics' (Rose & Lentzos, 2017: p.45). Taking inspiration from these approaches, we critically 'engage with' (King et al., 2021) resilience by interrogating how resilience vocabulary shapes policy and how it makes practices aimed at anticipating future shocks and crises governable in the here and now.

In this article, we empirically research how the resilience discourse is mobilized and used in daily practices of urban governance using a governmentality lens. Currently, urban governance is one of the main areas in which resilience has gained ground as a new way of governing (Coaffee et al., 2018; Evans, 2011; Hommels, 2018; Meerow & Newell, 2016; Mehmood, 2016; Vale, 2014; Walker & Cooper, 2011). However, there is still a lack of understanding *how* resilience is transforming urban governance, as empirical studies on the resilience policies that are adopted and implemented in cities and on the tensions this raises are

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lacking (Woodruff et al., 2021; Pitidis & Coaffee, 2020). By foregrounding the various technologies, tactics, methods and procedures of governance (Joseph, 2018), we are able to gain insights into this. In this article we answer the following research question: *What governing techniques are developed for governing the resilient city and how do they align or conflict in daily practices of urban governance?*

We conducted a multi-sited ethnography by 'following resilience around' different field sites and practices within the city of Rotterdam – the second largest city of the Netherlands – that joined the *one hundred resilient cities* network pioneered by the Rockefeller Foundation in 2014. We analysed how the local government attempts to operationalize the resilience discourse in public policy. Moreover, we scrutinized one district within the city as an exemplary case study of the contemporary resilience discourse. In the context of the one hundred resilient cities program this area – one of the poorest areas within the Netherlands – was set out to become the cities' first resilient district.

In what follows, we first elaborate on the discourse of resilience, using a governmentality lens. Second, we introduce our case, its context and the methods used in our study. Third, we present the analysis of our multi-sited case study. We distinguish five techniques to govern the resilient city: anticipating, transcending, laboratizing, monitoring and responsibilizing. Next, we illuminate the entanglements of these techniques by highlighting their alignments and frictions. We conclude with a discussion on how to place resilience as a new form of urban governance.

2. Governmentality: anticipating resilient futures

In this article we adopt a governmentality approach to analyse resilience. Governmentality is often contrasted with top-down government and sovereign power, where political power is exerted by (and attributed to) a central coercive organ through disciplinary techniques, surveillance and monitoring. Instead, governmentality is posed as providing a more dispersed and fine-grained perspective on political power and governance, as a less direct means of governing by shaping conduct 'from a distance'. In this view, governing takes place through various discourses, related social practices, and techniques of (self) governing (Lemke, 2011). This results in individuals regulating their behaviour according to *'available rationales of the collective, in a kind of enforced, managed and assessed liberty'* (Woolgar & Neyland, 2013: 26). Exactly because power is neither organized centrally nor oppressive, governance can take place from a distance in a pervasive manner through facilitation and encouragement. In this way 'free conduct' is actively constructed and guided towards responsible behaviour. In the art of governing however, both sovereign, disciplining power and dispersed, persuasive power overlap. This way, the 'conduct of conduct' proceeds in and through different institutions and disciplined individuals (Dean, 2010; Rose et al., 2006).

We build on a growing scholarship that uses governmentality to study practices of resilience. On the one hand, various authors working from this perspective have analysed resilience as a neoliberal governmentality that responsibilises individual citizens and communities into a state of preparedness for future crises and shocks. By guiding citizens to conduct and evaluate themselves in ways that align with governmental objectives responsibilities are shifted from the state onto individuals and communities (Rose, 1996b). Within neoliberalism, conduct is subject to logics of competition and market behaviour and characterized by a displacement of responsibilities away from the state onto a civil society of responsible and active citizens. Rather than a retreat of the state this means a governmentalization of the state according to market mechanisms. Hereby, citizens are free in their choices while expected to adhere to competitive rules and persuaded to be enterprising and responsible citizens not relying on state-support (Dean, 2010; Joseph, 2018; Rose, 1996a).

For example, Davoudi (2016) links resilience to self-reliant citizens who reduce their vulnerabilities in a way that fits governmental aims of bouncing back and preserving the status quo. Evans and Reid (2013) describe how resilience deliberately incapacitates citizens' political habits and tendencies and exchanges them for adaptive capabilities. While Joseph (2013, 2016) argues that instead of trying to change the world on a macro level, within the resilience discourse citizens are expected to adapt their behaviour and to thrive under pressure. In the same vein O'Malley (2010) describes how resilience produces citizens that are expected to exploit situations of radical uncertainty (O'Malley, 2010). Diverging from the 'risk society', resilience brings characteristics like vulnerability, unpredictability, transformation and adaptation into the governance of *naturalized* crises and uncertainty (Welsch, 2014). Some authors regard this as a post-political ideology in which resilient subjects show flexibility and adapt to rather than resist the conditions of crises and suffering (Bracke, 2016; Kaika, 2017; Neocleous, 2013; Reid, 2012; Welsch, 2014).

In more hopeful terms, authors like Chandler (2014) regard resilience as a fundamentally new governmental episteme, with a distinctively new understanding of emergent complexity. Here, resilience is posed as an essential part of a new social ontology, that depicts the world as inherently complex and uncertain and moreover, beyond our comprehension and control (Joseph, 2018). According to Chandler (2014), resilience is changing our understanding of existence into one of *ontological uncertainty* of complex life, contrasting Giddens notions of ontological security that secured citizens against hardship and adversity through state-supported welfare provision. It is a move from the liberal governmental reason of the 'known knowns' (which are based on linear and universal premises on governing human affairs), via neoliberal reason of the 'known unknows' (knowledge gaps that can theoretically be singled out to become 'known' through deeper understanding of determinate relational causality) into the 'unknown unknowns' (implying inherent unknowability of knowledge gaps, of future disruptive events). Resilience exemplifies this shift as a new basis of governmental reason in the way that it proposes a self-reflexivity and responsivity as key attributes that need to be developed in order to govern on the basis of unknowability. Therefore, instead of trying to change the world, the aim of resilience is to learn how to adapt our behaviour (Joseph, 2018). In this way, resilience emphasizes a focus on adaptation and preparedness.

Recently scholars have pointed out that the resilience discourse is neither necessarily a continuation of neoliberal governmentality nor something entirely new (Howell, 2015; Joseph, 2016; Rose & Lentzos, 2017). According to Rose et al. there is a tendency to take neoliberalism as a constant master category to explain and understand the arts of governing. They argue that theoretical analyses like these do not consider the (partial) empirical novelty resilience entails and call for empirical analysis of the resilience discourse on the ground floor (Rose & Lentzos, 2017). Resilience discourse may rely on existing neoliberal governing rationalities, but at the same time may invent 'new' governing techniques that align well with uncertainty, complex systems and a changing world (Howell, 2015). Therefore, instead of either old or new techniques of governing political rationalities resilience will likely show a shift and consist of a more hybrid mix as techniques are always undergoing modifications in relation to new problems, as well as preserving some old modes of thought and technologies. Empirical research of the resilience discourse would give new insights into the question whether and how resilience shapes policy and practices aimed at making future disruptive events actionable in the present.

3. Case and approach

3.1. Setting

The city of Rotterdam, the second largest city of the Netherlands, joined the world-wide Rockefeller 100-Resilient Cities initiative in 2014, launching its resilience strategy in 2016 in order to become, *'a city that is prepared to engage with opportunities and challenges of the future'*

Table 1
Overview of data.

	City level	BoTu district
Interviews	Chief resilience officer (1), Deputy Chief resilience officer (2), Municipal civil servants (2), Directors Field consortium/ knowledge institute (2)	Municipal civil servants (2), BoTu social entrepreneurs involved in local projects (5), Field consortium/knowledge institute employee (1), Informal interviews (7) with knowledge institute directors and employees, municipal civil servant and local stakeholders working within the resilience program
Observations	Workshop "searching for resilient living environments: action research into social resilience" (February 2018) Workshop "searching for resilient living environments: how to build a living lab in a day" (February 2018) Workshop "searching for resilient living environments: work-session" (February 2018) Masterclass Resilience Thinking (June 2018) Knowledge festival, Municipality of Rotterdam, session: urban resilience (October 2018). City-makers conference, sessions: resilient living environments (November 2018)	District tours and presentations (twice in January 2020) Public presentation BoTu teams (February 2020) Urban Resilience Summit, three-day world-wide summit, Rockefeller Foundation (July 2019) City-makers conference, sessions resilient BoTu (November 2019) Observation 'climate living room' September 2021
Documents	Resilient Rotterdam strategy, Municipality 2016 (+100 pages) Website resilientrotterdam.nl www.resilientcitiesnetwork.org Field consortium Literature study on community resilience (Doff, 2017)	Resilient BoTu 2028, towards the urban average in ten years, municipality 2018 BoTu monitor start, Field consortium 2020 (+100 pages) and Botu monitor progress, Field consortium 2021 (+100 pages) retrieved from https://verhalenvan botu.nl/monitor/ Website gobotu.nl

(Gemeente Rotterdam, 2016). Immediately, a Chief Resilience Officer (CRO) was appointed to implement 'resilience thinking' into 'the DNA of the city'. With the involvement of the CRO, the next move was to actively pursue the involvement of societal and governmental actors to use the 'resilience lens' in their practices. In this context, many initiatives connected their practices to the resilience strategy; local governmental actors were trained to apply resilience in their work, and resilience thinking became emphasised in policy documents and educational curricula. The resilience strategy on the city level subsequently led policy-makers and politicians to choose one specific district, the neighbourhoods of Bospolder and Tussendijken – commonly known as BoTu– to become the cities' first resilient district.

BoTu is a densely populated, highly diverse (80 % of the population is made up of 'new Dutch' citizens) and relatively young (BoTu has more residents between the age of zero to fourteen and a lower percentage of 65+ than the urban average) neighbourhood. Bospolder and Tussendijken are placed second and fifth on the list of the twenty poorest postal codes in the Netherlands. Almost 75% of BoTu households are in the 'low income' category. Many residents indicate feeling lonely and unhealthy, the unemployment rate is high (the area has an above-average number of residents without the appropriate diplomas for the current job market) and many households are living in conditions of severe debts. The housing stock consists for more than 60 % of social housing (rental) with lots of houses of poor quality.

BoTu does well on other indicators. Residents feel connected with their neighbourhood, they are involved and want to invest in it. BoTu is popular for its facilities, citizens initiatives and various community networks. Policy-makers and politicians view the cooperative ventures in the district as an opportunity for continuing the upward trend in the social index in BoTu, as already seen over the past four years. Eventually this resulted in the program *"Resilient BoTu 2028, towards the urban average in ten years"*. The programs' ambition is to make progress within the area of: (1) work, language, debts; (2) healthcare, young people, parenting and (3) energy, housing and outdoor space.

3.2. Data collection and analysis

This article is based on fieldwork carried out between February 2018 and September 2021, with varying moments of being present. We conducted a multi-sited ethnography (Willis & Trondman, 2000), following the resilience discourse around different field sites and practices on both the level of Rotterdam city and within the BoTu district specifically. Within these different levels of analysis, we conducted (+38 h) observations of workshops, presentations, conferences, city/neighbourhood tours and an international summit on (urban) resilience (with some components open to the public, others by invitation). In addition, we conducted semi-structured (15) and unstructured interviews (7) with key-actors. Respondents were selected based on their involvement with designing, implementing and executing resilience policies on municipal or neighbourhood level (or both). The semi-structured interviews dealt with the interpretation of resilience, its governance and how resilience

Table 2
Overview governing techniques of the resilience city.

Governing technique of resilience	Anticipating	Transcending	Laboratizing	Monitoring	Responsibilizing
Problematization	Emerging complexity and increasing uncertainty about the future	Organizational (municipal) silos	Bureaucracy, Lack of discretionary space	Featuring on 'bad lists' on both city and national level, low index score on prominent indicators	Residents lacking resources, skills and capacities
Focus	Attacking complex, interconnected global (future) problems locally in the present	Lever-effect to create synergy	Learning by doing, experimentation in real life settings	Indexing, benchmarking	Projects aimed at activation
Instruments	Forward mapping, scenario's	Boundary-spanners and interdisciplinary partnerships	Urban (living) labs	Social index+ Functional performance indicators	Life stories, Role models
Actors	Chief Resilience Officer (CRO), local government, knowledge institutes	Boundary spanners: Chief Resilience Officer (CRO), city-marines, municipal managers	Municipal policymakers, (semi-) public service providers, knowledge institutes, market parties and citizens	Knowledge institute and municipal policy-makers and municipal research department	Local government, citizens, civic organizations
Politics	Politics of affect	Politics of the greater good	Politics of exception	Politics of organizational interests	Politics of empowerment

was practically implemented on the ground floor (for example, we asked respondents about their role within resilience policy, what they considered resilience to be, what they did to improve resilience, in what political-administrative context resilience took place and the relationship with residents, if and how they felt the neighbourhood improved because of the policy). During the observations, we informally conducted unstructured interviews to be able to delve deeper into our observations (for example by asking actors about the relationship between municipality and residents, how they translated reactions from audiences back to the municipality, how they incorporated residents' reactions to presentations). Lastly, we triangulated our ethnographic approach with document analyses (+300 pages) of relevant resilience strategies and evaluations (see Table 1 for an overview).

In our fieldwork, we followed resilience around different levels to see what the discourse *does* to the practices it claims to represent. We analysed the data discursively and in line with a Foucauldian inspired discourse analysis. This means that we did not pursue revealing a true meaning by what has (not) been said, but rather that we analysed statements for what they *do*, and the performative effects of what is (not) being said (Alvesson & Karreman, 2000).

All interviews were transcribed and observations were processed into field notes. Together with existing documents, all data were coded using Atlas.ti software. First, we analysed general topics that emerged inductively from the data such as, (1) a state of preparedness, shocks and stresses, risk and uncertain futures (2) the need for collaboration between multiple actors/sectors with different backgrounds with regards to resilience, network formation and synergy; (3) experimentation, change and creating learning environments; (4) accountability, outcome measurement and improvement; and (5) empowerment of citizens and communities, people taking care of themselves and their surroundings, ownership, responsibility and active citizenship. Next, we analysed these inductive topics more deeply in terms of *urban governance*, as they made up different ways of governing the resilient city. Based on the literature on governmentality and urban governance, we grouped these general inductive topics into five coherent themes and identified them as five *governing techniques* - anticipating, transcending, laboratizing, monitoring and responsibilizing. Subsequently, we analysed them in more detail with a focus on the characteristics of each specific governing technique: problematization, focus, instruments, actors and their politics (see Table 2).

First, the concept of *problematization* allows us to highlight what needs to be governed. Problematizations, as 'active ways of positing and experiencing' (Osborne, 1997) problems, illuminate the constructivist and structuring nature of what is at stake within each technique. This is essential because the way in which an issue is problematized already relates to envisioned solutions, instruments and methods used to resolve it (Miller & Rose, 2008). Next, the focus, instruments and actors of each technique highlights *how* governance is operationalized and performed, and by whom. Further, we show the embeddedness of each technique within a specific type of politics. Finally, after specifying each individual technique in the result section, we delve into their entanglements by analysing how the different techniques relate to each other; the ways they strengthen or work against each other. This way we gained insights into the dynamics between the techniques and the governance of resilience as whole.

4. Results

Based on our analysis, we were able to construct five governing techniques that together form a hybrid mix of old and new in which a specific type of resilient futurity unfolds. In this next part we first elaborate on each technique on the basis of their problematization, focus and instruments and politics. Next, we illuminate the entanglements of the governing techniques by highlighting their alignments and frictions.

4.1. Governing techniques of resilience

4.1.1. Anticipation

> "We are not going to wait until the shocks or stresses hit us, no, starting now we are going to work on a high level of resilience (…) We want to work on resilience preventively, not reactively after a crisis. Therefore, resilience is a strategy."
>
> (Interview Chief Resilience Officer March, 2018)

4.1.1.1. Problematization. The first technique of governing the resilient city we delineate is *anticipation*. This technique is concerned with global uncertainty in an interconnected world characterized by vulnerability and high uncertainty about the future of (city) life. A wide array of issues – ranging from the rising water level, floods, heatwaves, the widening gap between the rich and poor, migration but also cyber dependency, an aging population and the unsustainability of current energy recourses – are regarded as causing vulnerability. Within this context crises, shocks and transitions are framed as an inevitable and unpredictable part of the future. In order to be able to survive and even thrive in the face of future crises and transitions, cities should anticipate them, as they are the key places to bring about innovative solutions (Rotterdam 2016).

4.1.1.2. Focus and instruments. Different parties such as the municipality, the Chief Resilience Officer and knowledge institutes take up resilience as a tool to pro-actively create a state of living in preparedness. Anticipation is an important part of the daily work of the CRO in his attempts to mobilize multiple stakeholders and implement 'the resilience lens'. In this way, resilience means anticipating urban threats and turning them into opportunities.[1]

To do this, actors use *scenario-thinking* and *forward mapping* to predict the assumptions and estimated effects of anticipatory interventions. Examples are the assumption that "investments in climate adaptation and energy transition increase the protective factors in the neighbourhood" or the assumption that "investments in residents' skills lead to more resilient actions" (BoTu Monitor, 2021).

4.1.1.3. Politics. Within this technique we discern a politics of affect. Through public performances, workshops, summits, masterclasses and strategy documents, the CRO creates a sense of urgency by repeatedly stating that *'we need to be prepared'* and *'we have to act now'*, accompanied by images of disasters such as urban poverty, refugees, demonstrations and the destructive power of natural disasters. The policy rhetoric of resilience affectively taps into fears about the urban future. The future, inherently unknowable and mobilized as both fearful and hopeful, is brought into the present and called upon to act now. After provoking feelings of uncertainty and inevitability, the CRO subsequently offers a promissory rhetoric of resilience as the solution. In this way, the politics of affect result in the imperative to act now to prevent disruptive events in the future.

4.1.2. Transcending

> "In the development process it was stated that there is a big water issue in this neighbourhood. There is an issue of resilience on the physical level, so to say. Subsequently the question becomes how to

[1] "Rotterdam and water: from threat to opportunity. Rotterdam lies largely below sea level, right at the heart of the river delta around which the Netherlands is based. The city is directly connected with three major rivers and is located right on the coast. It receives an above average amount of rainfall and also suffers from subsidence issues. Rotterdam has had no choice – it has had to learn to cope with and manage water out of necessity" Resilience Strategy, page 26.

connect this physical resilience issue to existing social issues in this area."

(Interview deputy CRO October, 2019)

4.1.2.1. Problematization. The second technique, *transcending*, is concerned with overcoming organizational silo's within urban governance. According to a city district-manager *"actors are used to thinking in terms of urban problems and moreover think of them single sided, while what we need instead is to try and think in chances and to connect, to de-silo*." In order to become a future-proof city, various respondents argue, resilience should allow for transcending the current siloed organization of urban governance by joining-up services and collaborating between private and public parties. The ambition of transcending is to span the natural, physical, economic and the social world. As the director of the Field consortium, working with implementing resilience within the city argued:

"Resilience is something you can talk about with anyone, which is the added value of the concept (...) The concept brings things together. Before you had program A and program B and program C and now resilience is transcending, bringing things together"

(Director knowledge institute, 2019)

This quote highlights how resilience is regarded as enabling communication between different disciplines and groups. According to this director, it is what makes resilience so important to work with.

4.1.2.2. Focus and instruments. Transcending is operationalized as a leverage. The aim is to connect developments within the physical environment to social issues in order to create synergy. For example, by using interventions within the build environment to additionally create value for the area's social fabric. Hereto, different organizational silo's and public and private partners within urban governance need to be connected. This is done by involving boundary-spanners: specific key-actors who have the operational power to cut through existing bureaucratic regulations. In BoTu, the Chief Resilience Officer and a so-called 'city-marine' who got assigned to the area are examples of such boundary-spanners. They aim to produce a helicopter view and cooperation between different domains and parties. Moreover, interdisciplinary partnerships between municipality, citizens and market parties such as housing cooperation's and (local) businesses are encouraged. These partnerships aim to transcend existing boundaries in order to create synergy and hence more resilience.

4.1.2.3. Politics. Currently, different organizational domains each have their own organizational interests. Transcending deals with the politics of the greater good:

"Building a resilient city means (…) thinking beyond our own interests, and looking at the real questions that we face as a city, rather than just settling for the solutions that are already available."

(Rotterdam, 2016)

Transcending is an attempt to surpass the separate interests of domains and organizations by focusing on the greater benefit of the whole city.

4.1.3. Laboratizing

"BoTu is a testing ground for renewal and improvement. This means Resilient BoTu 2028 also needs to move with the times and respond to trends and developments"

(Resilient BoTu 2028)

4.1.3.1. Problematization. The third technique we distinguish is *laboratizing*: turning BoTu into an 'urban lab' for experimentation. Laboratizing is concerned with 'going against the grain': with new and experimental ways of urban governance in order to approach the knowledge gaps and the inherent uncertainty. Currently, knowledge gaps and uncertainty cannot be addressed properly within regular urban governance under new public management (NPM), due to organizational boundaries, bureaucratic regulation and associated red tape. The urban lab provides the discretionary space that is lacking within NPM in order to experiment with urban issues (Oldenhof et al., 2020) without having to comply with predetermined performance goals.

4.1.3.2. Focus and instruments. Urban labs increasingly bring together local policymakers, (semi-)public service providers, science, market parties and citizens— in a so called 'quadruple helix mode' (Bulkeley et al., 2016)— to create a place for learning opportunities on urban resilience. Central notions in the lab are *experimentation*, embracing *contingency* and *uncertainty* and the achievement of *change orientation*, the normative goal to generate a more desirable future (Karvonen & van Heur, 2014).

Turning an urban space such as BoTu into a space of experimentation is a technique that particularly enables *learning by doing*. Here, the actors within a 'quadruple helix mode' work under circumstances in which both starting point and exact destination are as yet unspecified, and therefore turn towards experimentation. Confined by the boundaries of the experimental space, the urban lab then allows for trying out new things and for failure. In fact, failure is perceived as a learning opportunity. Actors involved in the urban lab are required to embrace fluidity and complexity of processes of urban change meaning the acceptance of unforeseen outcomes. Moreover, the learning environment of the urban living lab offers a way for scalable lessons learned to be exported to the rest of the city (and beyond).

4.1.3.3. Politics of exception. The urban lab can be regarded as space of exception: experimentation allows for the temporal exemption from normal rules and regulations, enabling stakeholders to experiment with new methods, concepts and partnerships. Ideally, this place of exception makes *'the impossible become possible'* as several civil servants expressed.

4.1.4. Monitoring

'The goal is: Towards the urban average in ten years.'

(Subtitle Resilient BoTu 2028)

4.1.4.1. Problematization. Fourth, we spotlight *monitoring* as a technique of governing the resilient city. Monitoring is concerned with BoTu's low index scores on the national and city level. Although, according to the numbers, BoTu residents feel connected with their neighbourhood and the district scores well on facilities and citizen-initiatives, the district mainly features on 'bad lists' (see context paragraph). These lists do not paint an optimistic picture of the neighbourhood and affects the way the area and the city as a whole are perceived. Monitoring is a way of accounting for the progress of interventions aimed at improving the district's resilience.

4.1.4.2. Focus and instruments. To account for progress of interventions, resilience is measured and monitored using the Index+ in a cooperation between knowledge institutes and local government. This Index+ consists of the Social Index 'plus' additional indicators from already existing instruments such as the Health Monitor. It means that the indicators that are used for monitoring are already existing (municipal) indicators. The Social Index is part of the Neighbourhood Profile, – together with the Safety Index and the Physical Index - a benchmark representing the city's strengths and weaknesses. The Neighbourhood Profile is measured through a survey every two years. The Social Index consists of the themes self-reliance, co-reliance, participation and connectedness as they are perceived by residents and also indicates how residents rate the

general quality of life. The Social Index plays an important role in the Index+, while the Safety and Physical index are used for describing the context of the neighbourhood. Additionally, a local knowledge institute issues a yearly rapport indicating the progress in more detail.[2] This rapport documents the development of the program, both quantitative trough the indexes as well as qualitative through narratives, in order to support and evaluate the process.

4.1.4.3. Politics. The way in which monitoring takes place results in a politics of numbers in order to steer and control the district on measurable variables. In order to gain good scores, interventions that aim to improve resilience by getting the index up, are actively encouraged. Thus, the index steers action and determines what counts as 'practices of resilience'.

4.1.5. Responsibilizing

> "At its heart, it's about the people of BoTu, and giving them control over how they improve their own social resilience."
>
> (Neighbourhood Manager, www.resilientcitiesnetwork.org)

4.1.5.1. Problematization. The last technique we highlight is responsibilizing. At stake here, is the central assumption within the resilience discourse that citizens in deprived areas are hit harder by disruptive events. The index shows that BoTu and its residents are lacking recourses, capacities and social capital. Moreover, many residents are dependent on income subsidies. It is assumed that these tendencies negatively affect resilience. The local government simultaneously assumes that neighbourhood inhabitants have self-organizing capacities they can mobilize, approaching it in such a way that *'self-organization in the city gets enough room and a flexible local government that only supports if needed'* (Rotterdam, 2016). In this way, developing self-organizing capacities is supposed to create individual and collective resilience, enabling citizens to survive and thrive in the face of future shocks, crises and transitions.

4.1.5.2. Focus and instruments. Citizens are responsibilised into becoming self-reliant actors, who '*are continuously developing themselves'*. Responsibilization is achieved by active enticement from the local government to 'get active', for example through involvement in projects to improve the neighbourhood or social fabric or to partake in empowerment-, employment or language projects. Hereto, key-figures at central sites like community centres and schools, approach residents that are deemed in need of support. Active citizens are encouraged to work together with other residents, local government and entrepreneurs to strengthen the resilience of BoTu. For example, residents are empowered to get a qualification in order to improve their employability and earn a basic income. Also, they are encouraged to participate in networks in which to address issues such as talent development, debts, learning new (21st century) skills and child rearing. Here lies a reciprocal relationship, emphasising active citizenship and responsibility as a precondition for receiving social support and services. Additionally, residents are empowered to build a network in order to acquire the social capital to help them create community resilience. In order to empower and activate others, role-models share their life stories focusing on what empowered them and how they now give back to their community.

4.1.5.3. Politics. Within this technique we discern a politics of empowerment. In enticing, optimistic ways, the local government actively involves, presents and rewards local role models as good examples of resilient citizens with the aim to empower others to become active and involved. The claim that '*BoTu is made by the people'* is a moral appeal towards generating feelings of community, a sense of belonging and active involvement.

4.2. Entanglements of resilience

Below, we analyse the hybrid entanglements between different governing techniques in practice. The results show how some techniques productively align whereas others conflict, with important consequences for urban governance.

4.2.1. Alignment of anticipating, transcending and laboratizing

As a first entanglement, we found that anticipating, transcending and laboratizing tightly align. Promissory policy rhetoric about the future of the resilient city, as a technique of anticipation, highlights optimistic attempts to cut through or transcend existing organizational boundaries and structures by creating alternative spaces of experimentation in urban living labs. In fact, thereby laboratizing the urban fabric of the neighbourhood. To reduce the effects of global uncertainty and future crises, city districts are labelled as experimental spaces where assumptions about resilience can be tested (e.g. energy transitions as a stepping stone to address social issues) and form new interorganizational partnerships between private, public and societal partners:

> "BoTu is a unique experiment where we are finding out REALLY in an integrated way how to work on resilience at a relatively large scale, a whole district. It's the WHOLE package, not only about climate adaptation or energy."
>
> (Chief Resilience Officer, resilientrotterdam.com)

Because the urban lab operates as a *liminal space*, this is the exact spot to experiment with techniques such as transcending existing organizational structures in urban living labs in order to anticipate resilient futures. Liminality in this sense means being positioned in-between different stakeholders and organizational boundaries, which can be used to transcend those boundaries and join-up efforts. Because it is called an *experiment* it allows for failure and actors dare to let go of old ways of working in order to go against the grain to freely experiment and create a place where the *'impossible becomes possible',* as respondents argue. Moreover, the imperative to act, inherent in anticipation, aligns perfectly with the experimental mentality of laboratization – through 'learning by doing' in the urban lab.

In our research, the alignment between anticipating, transcending and laboratizing is strikingly illustrated by the energy transition that is framed as a good example of working on a resilient urban future. This project highlights how the energy transition (as a way of anticipating a more sustainable future), is used as an experiment (laboratizing the urban fabric) to test assumptions about connecting physical interventions with social interventions (transcending the boundaries of these different municipal silos). In this way, the energy transition encompasses all three techniques to fulfil the promise of more energy proof neighbourhoods.

The assumption here is that energy transition projects in BoTu do not only contribute to (future) climate resilience, but can also be an impetus for social resilience. This is captured by the metaphor of the leverage: a (physical) input force (e.g. energy projects), can create a greater (social) output force (social resilience). To establish such an effect, the International Architecture Biennale Rotterdam (IABR) appointed specific social housing flats for the implementation of the energy transition — replacing gas with renewable energy from the harbour or industry. This housing complex is largely populated by elderly citizens and citizens from a lower social-economic status with diverse ethnic backgrounds,

[2] Unfortunately, at the moment of writing there was no information yet about how the index+ has evolved over the years. The safety index however, had shown progress in the years previous to the program which directly affected the involvement of a key-actor during the BoTu program. We describe this in more detail in paragraph 4.2.3.

which is regarded a vulnerability according to resilience-thinking. Within the BoTu programme the experimental venture of the energy transition was therefore taken up as an opportunity to combat loneliness, debts, language barriers and to provide care. First, this was done by becoming a familiar face for residents. Local community workers and volunteers sat at the entrance of the building with *"literally coffee and a cloth over a table saying: Good afternoon, who are you?"* (Interview city marine, April 2021). Simultaneously, a team of two community workers handed out roses to residents, knocking on every door in order to get to know the residents. This approach later evolved in a 'climate living room' for residents where they can have a chat, get to know each other, and learn about what the energy transition means for them, creating social ties in the neighbourhood. Second, since interventions aimed at new types of heating and isolation were conducted, technicians and coaches had access 'behind the front door' as they entered peoples' apartments to check the quality of their current heating system and isolation. Being inside of peoples' homes was at the same time viewed as an opportunity to learn and talk about social issues citizens might have such as unemployment, debts, problems with language and the need for care, concurrently putting them under a regime of supervision (Peeters, 2019) in a combination of care and control (Schinkel & van den Berg, 2011). When something was perceived as problematic, the coaches contacted community workers who could connect residents to relevant institutions, like debt counselling, social work, language courses or simply connecting them to other inhabitants for social contact.

This example highlights the alignment between anticipation of future energy transitions, transcending of organizational silos — connecting the physical with the social, but also municipal department of Sustainability and the department of Social Development— and laboratization of urban spaces into experiments that are ideally scaled up to other parts of the city.

4.2.2. Alignment of anticipating and responsibilizing

The alignment of anticipating and responsibilizing, resulted in precarious outcomes on the ground floor. Both techniques are concerned with a central assumption within the resilience discourse that deprived areas and its citizens will be hit harder by future disruptive events. The numbers show how BoTu residents lack recourses such as work, sufficient finances, language skills and social capital. To decrease this vulnerability, the resilient BoTu programme responsibilises residents into taking control over their lives as an anticipatory practice:

> "A telling indicator of social resilience is the extent to which residents experience self-direction and control over their lives. Only then can they also anticipate changes or adapt instead of just reacting"
>
> (Resilient BoTu Monitor 2021)

'Active' citizens are expected to be better prepared to anticipate future disruptive events. According to the CRO this requires that the local government adopts the new role of the enabling state. Rather than determining and implementing everything themselves, local government needs to facilitate citizen engagement: "*Citizens should be enabled to do the right things, as long as the goal is clear: liveability and the willingness to change" (Field-notes Masterclass Resilience Thinking, 2018)*.

A first example of this alignment are the projects enabling residents 'with a distance to the labour market' to develop skills that prepare them for future jobs, for example in the field of sustainability and the energy transition. In these projects, participants are activated and empowered to learn new skills such as implementing charging stations, installing solar panels and chores like isolating deprecated apartments. Although this can be regarded a good example of linking the energy transition (as anticipatory practice) to teaching residents' new skills and empowerment (as a responsibilizing practice), the project leader indicates that it had currently not offered participants concrete new perspectives regarding stable and full-time employability.

Other projects regarding employability reveal a similar tendency. The difficulty lies in finding (full-time) employment after the project has completed. The majority of the participants did not find stable part-time nor fulltime employment after participating voluntary in employability projects. This shows that the alignment between anticipation (for the future job market) and the responsibilization of citizens (conducting voluntary work) result in precarity for citizens rather than more social security.

In a similar vein some active key-actors in the neighbourhood who already performed unpaid labour in the neighbourhood were now co-opted by the BoTu programme. Their unpaid labour became institutionalized and more professional. In return they were rewarded by being enabled to develop the necessary skills to participate in the current job market by offering them the opportunity to follow educational courses. However, there was critique on the fact that inhabitants voluntarily participated in projects without actually getting paid for the services they provided. For example, job-coaches and community workers argued that participants should be financially rewarded for their efforts. The question expressed by a community worker during a public debate became *'why is there financial support for technical projects while the social has to be performed by volunteers?'*

An additional example of precarious outcomes of the alignment between anticipating and responsibilizing is a 'mother-group' that was mobilized as vehicle for, and prime example of, social resilience. This group comes together every month to inform parents, mostly mothers, about safety issues regarding their children and the neighbourhood. In addition, members of the mother-group – as role models – were also asked to organize social activities to strengthen the social fabric of the neighbourhood, thereby learning new organizing skills (as part of empowerment) as well as potentially attracting new mothers to join in:

> "How you give shape to empowerment, that also included the first public square programming that mothers programmed their own public square. That was really holding back (…) so that they program themselves and that they come up with activities themselves. Figure out for yourself what that costs and how to do it (…) But meeting is very difficult, making agreements is very difficult, agreeing together on what activity to do is difficult. Well it was real, I had to hold back and make sure I did not intervene. That is giving them space and making sure they do it themselves. Because the 2nd, 3rd and 4th square programming went like a charm. Sometimes you have to let it go and then be patient and then it won't work out the first time."
>
> (Interview municipal civil servant, April 2021)

Although it is hard to argue against mothers organizing activities to strengthen the social fabric of their neighbourhood, it also shows that resilience in BoTu is primarily executed through unpaid labour of women.

These examples – role models, participants in employment projects and mothers – may indeed be taken up as best practices of empowerment and resilience on an individual level. However, when residents are empowered in the face of anticipating transitions and future crises, without any real perspectives of putting the obtained capacities into practice on a level that can sustain a livelihood, resilience appears to be a rather precarious practice.

4.2.3. Laboratizing and transcending versus monitoring

This last entanglement highlights how progressive attempts of laboratizing and transcending conflict with the technique of monitoring based on indicators. This conflict is particularly caused by the performativity of indicators and the dominance of organizational interests supported by it.

Firstly, a conflict arises between laboratizing and monitoring. Central premises of laboratization are experimentation and 'learning by doing' through embracing contingency and accepting unforeseen outcomes. In the urban lab practices, these premises were not always reconcilable with the BoTu monitor. In the case of the BoTu monitor it is

the social index that for a large part determines what counts as resilience and what not. For example, institutionalized voluntary work scores on the index whereas the inhabitant who runs a soup kitchen in his basement does not. Therefore, some municipal civil servants opposed the use of a uniform index in BoTu as the central governance ambition due to the curtailment of experimentation and its standardization effects. As one civil servant (strategist) indicated: *"these indicators could obscure the districts' uniqueness"*.

The accomplished rise on the safety index also caused a performative effect. The 'city-marine' – who as a progressive boundary-spanner helped many experimental projects taking off – had to leave because her mission was deemed accomplished:

> Well, now BoTu wasn't even in the lowest 25 anymore (…) Well, then my colleagues said: 'you can no longer say that that is an emergency'.
> (Interview municipal civil servant, April 2021)

With the parting of this city-official – with her power to cut through existing bureaucratic regulations – the boundary-spanning capacity inherent in the technique of transcending, runs the risk of being pushed to the background with organizational interest becoming once again more prominent. This is a genuine risk as the BoTu monitor document states that aside from some progressive boundary-spanners positioned at the top, the municipal apparatus of civil servants still works within a siloed administrative context that does not allow experimentation to be accounted for.

Secondly, there is a tension between transcending and monitoring. Although new interorganizational partnerships are initiated in BoTu, for example between the municipality, housing cooperation and (entrepreneurial) citizens, in many instances organizational politics still prevail. For example, the municipal silo 'urban development' withdrew itself from an interorganizational partnership in BoTu aimed at experimenting with the urban development of a derelict old factory area by stimulating community building. Due to European tendering legislation, the municipal urban development department felt they did not have the room to be part of this urban development experiment. According to the actors involved: *"the municipality commits to integrated working at management level, but not all departments within the municipality are set up in this way of working together."* (Resilient BoTu Monitor, 2021). It turns out that transcending silos is impeded by their own administrative context and organizational interests.

Likewise, organizational interest became apparent when the municipal department of real estate sold a BoTu community centre which had been redeveloped by volunteers and was considered a best practice of social resilience producing a strong social fabric and interorganizational collaboration. The public outrage about selling the building on the market was great, given the fact that inhabitants had added social value to the building by redeveloping it through connecting/mobilizing different stakeholders in the neighbourhood. While the neighbourhood centre was supported by some departments and actors of the local government (such as the city marine), the real estate department argued that financial value was more important than the social value of the building, thereby disregarding inter-organizational collaboration and community building.

What these examples together make clear is that transcending organizational silos and the experimental 'learning by doing' nature of the resilience approach conflicts with the performativity of indexes and the administrative- legal framework that municipal actors (have to) adhere to. Because organizational interests prevail due to siloed targets, transcending municipal silos or organizational boundaries within experimental spaces turns out more a policy rhetoric than a reality.

5. Conclusion and discussion

Our research of resilience as a 'matter of empirics' gives new insight in how to place resilience between a progressive politics and cruel optimism. Resilience might on the one hand open up a space for creativity and action and thereby 'provide handholds for a more progressive politics' (Rose & Lentzos, 2017: 45). On the other hand however, resilience could entail a form of cruel optimism (Berlant, 2011; Bracke, 2016), referring to either the situation when something that is desired in practice turns out to be an obstacle for flourishing, proving toxic upon attainment or the emotionally charged attachments to fantasies that are forever out of reach. Our results show the resilience discourse has the potential to be both depending on the governing techniques used and the interactions between them.

We identified five governing techniques that are part of governing the resilient city of Rotterdam: anticipating (resilient futures); transcending (siloed organizational interests); laboratizing (the urban landscape by setting up experiments as labs); monitoring (progress through indicators) and responsibilizing (citizens and communities to be become self-reliant).

Some of these techniques show promising attempts to govern in 'new' ways. For example, urban laboratization aims to move beyond styles of governing that are based on pre-determined performance indicators and departmental goals by allowing for a degree of uncertainty through experimentation and learning by doing. Additionally, anticipation of the (resilient) future surpasses a focus on checks and balances by foregrounding uncertainty. Moreover, transcending was aimed at overcoming municipal silos in order to govern urban issues in interdisciplinary partnerships between municipality, citizens and market parties.

Other techniques can be perceived as a continuation of neoliberal thinking. First, responsibilizing individuals to become more self-reliant is a technique of governance that can be found in neoliberal policies (Joseph, 2018; Peeters, 2019; Rose, 1996b). Within the resilience discourse in our case study responsibilization clearly plays an important role, as the local government aims to entice and enable citizens to be prepared and thrive in the face of (future) shocks and transitions. Moreover, monitoring through the social index is aimed at 'improving' the neighbourhood and its citizens, for a great part by putting in place checks and balances with commonly used contexts and indicators from separate silos.

The way resilience is shaped not only depends on these individual techniques but also on the way they are entangled in practice, highlighting the importance of following the concept through its travels (Howell, 2015; Pitidis & Coaffee, 2020; Rose & Lentzos, 2017). When techniques align (in case of anticipating, transcending and laboratizing) this can create opportunities for long sought-after policy aims such as integration of public domains. However, techniques can also align in such a way, as was the case for anticipating and responsibilizing, that it only increases the precarious position of certain groups of citizens, for example when the unpaid work of women is highlighted as a prime example of resilience; when sustainable employment is out of reach; and when residents are guided to rely on themselves and each other regarding shocks and transition. In line with Lorey (2015), we recognize this as a form of governmental precarization (Lorey, 2015); a type of governing through uncertainty in which precarity is maximized while security is minimized.

Different techniques can also conflict as in the case of monitoring and transcending and experimentation, limiting the potential to reach their aims. This conflict is not inherent to the techniques themselves but arises in how they are used and positioned against each other in practice. Monitoring can also function as a reflexive tool (Wallenburg et al., 2021), thereby strengthening experimentation. In our study however, monitoring resulted in organizational interests that risk hampering practices of laboratizing and multi-disciplinary approaches to urban issues.

Importantly, rather than foregrounding resilience as hurrah-word (Bovens, 2005) and an optimistic tool for becoming prepared for future disruptive events, it is paramount to engage in political discussions about the conflicting interests at stake in designing the resilient

Table 3
Lessons learned.

Governing technique of resilience	Anticipating	Transcending	Laboratizing	Monitoring	Responsibilizing
Pitfalls	(1) Reacting to symptoms of crises instead of the underlying causes (2) Always preparing for the prior disaster.	Silos working against each other: different accountability systems and financial budgets	(1)Insufficient room for genuine experimentation; (2) No learning cycle	Hitting the target but missing the point: too much focus on achieving targets but missing overall aims	(1) Burdening people in precarious positions; (2) Giving hope but unable to fulfil promises; or promises do not fulfil actual needs
Reflexive guidelines	(1) Create awareness concerning the broader stakes and conditions at macro level while addressing urban issues practically on the *meso* and micro level (2) Focus on adaptation and improvisation	(1) Articulate the different interests and concerns, search for shared matters of concern; (2) Align accountability systems and financial budgets according to shared interests	(1) Create conditions for open experimentation; (2) Identify and align with appropriate knowledge infrastructure and choose an appropriate research design that focuses on 'learning by doing' instead of 'doing before learning'	(1) Engage in reflexive monitoring in which targets are not set in stone; (2) Create awareness for narrative forms of accountability in addition to monitoring based indicators.	Reflect on question of social justice: ask *who* is served by implementing resilience and *if* proposed hopeful promises are indeed *able* to produce just outcomes for the people involved

city. The initiatives operating within the resilient discourse in this study are in themselves creative and hopeful city-making practices. However, the way governmental techniques are set up and work out in practice, partly through the entanglements of different techniques can (unintentionally) produce unjust outcomes. The fact that hopeful attempts might actually have cruel effects, is something to consider when designing the resilient city.

As the resilient city discourse is burgeoning many cities around the world are eager to learn about implementing resilience. We wrap up our discussion with some guidelines for this agenda. The relevance of our paper for other cities lies in its empirical reflections. We show that what happens under the header of resilience is not straightforward and leads to different practices that are sometimes contradictory or that turn out not to be helpful (even harmful). This serves as a valuable insight. Although different cities face different challenges, and the resilient city is not a one-dimensional policy guide, it is possible to draw some lessons. These lessons should not be seen as a blueprint but as reflective insights that sensitize actors involved in resilience policymaking. Below we describe four generative insights for designing the resilient city. Moreover, in Table 3 we describe pitfalls and reflexive guidelines for each individual governing technique that other cities, in our view, should consider when working with resilience as a policy guide.

Firstly, it is paramount to be mindful of existing techniques and the way they interfere with newer ones (e.g. laboratization), instead of naively approaching them as separate change-makers. In practice, resilience policies consist of old and new governing techniques that are entangled in different ways. Older, yet established policy tools will run through new attempts of implementing the resilient city. Policymakers should take these entanglements into account when designing resilience policies.

Building on that, secondly, recognizing the potential of certain techniques does not discard academia and policymakers alike from the obligation to critically scrutinize their (unintended) consequences. This includes attention for the way different techniques interact with each other.

Thirdly, in reflecting on those consequences policymakers should reflect upon the question if this design leads to a 'just city' (Fainstein, 2014), taking the notion of precarity (Lorey, 2015) into account. This means asking the question *who* is served by implementing resilience policy.

Lastly, through the technique of anticipation, the resilient city runs the risk of becoming a post-political instrument (Kaika, 2017) for dealing with urban issues. When anticipating urban issues such as urban heat, flood risks or increasing socioeconomic inequalities, underlying causes should be considered. The fact that underlying causes generally have a structural character on a meta level does not absolve policymaking and science from articulating and addressing them as much as possible. Ideally, the resilience agenda should instrumentally address urban issues while simultaneously creating more awareness about why these issues exist in the first place.

With regards to future studies, it is crucially important to study how the techniques work out for citizens in practice in the long run. For example, whereas using the implementation of the energy transition to detect and combat social issues can be seen as a way of working across policy divides, it can also be viewed more critically as combining care and control as it puts citizens under a regime of supervision (Dean, 2010; Peeters, 2019; Schinkel & van den Berg, 2011). Small forms of resistance in practice, for example within the critique expressed about unpaid labour or the public outrage about selling a building with an important social function for the community can be important starting points for such critical reflection. The same goes for citizens' everyday routine of 'doing' resilience by taking care of each other and their living environment in one of the poorest urban areas in the country - perhaps offering a view on 'real' forms of resilience (King et al., 2021 p. 932).

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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CRediT authorship contribution statement

Sabrina Huizenga: conceptualization, methodology, research, formal analysis, writing – original draft & editing

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