SMU
SINGAPORE MANAGEMENT UNIVERSITY

SMU CITY DIALOGUES
White Paper

What is the Value of Urban Resilience?

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SMU CITY DIALOGUES

In 2019, the Singapore Management University (SMU) inaugurated a series of engaged discussions involving business, government and experts from academia, on topics that matter to the city.
SMU City Dialogues aims to bring together invited delegates for frank and open discussions under Chatham House rules, to share ideas and best practices, at the end of which a White Paper is produced to summarise the key discussions and ideas arising that can create societal and community benefits. The views contained therein do not represent any official views from SMU.

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What is the Value of Urban Resilience?

Executive Summary

Urban resilience is often presented as a technical response to uncertainty. But there is so much more at stake. Resilience is a political, social, and economic platform through which societies decide what they value, whose interests they prioritise, and what futures they seek to create. This makes resilience a powerful tool for shaping future imaginaries, aligning actors across shared priorities, and providing an organising principle through which cities can better negotiate uncertainty. But at the same time the question remains: **how is resilience being deployed and whose interests is it really serving?**

This white paper synthesises key insights from the fourth “SMU City Dialogues” session, organised by Singapore Management University as part of the Mayors Forum of the World Cities Summit 2025 held in Vienna. Bringing together perspectives from academia, industry, and government, the discussions interrogated a central question: What is the value of urban resilience?

Insights reveal that resilience is not a neutral, concrete objective, but a site of negotiation shaped by competing priorities, institutional constraints, and uneven capacities to act. And it is within this site of negotiation that we find the true value of urban resilience.

Four cross-cutting themes emerge from our discussions. First, resilience is often justified through economic logics, and existing valuation frameworks struggle to capture its broader social and environmental benefits, risking the marginalisation of less quantifiable forms of value.

Second, governance partnerships are vital for implementation, but frequently constrained by institutional fragmentation, limited accountability, and flawed participatory processes. Third, resilience is unevenly distributed: structural inequalities shape both vulnerability to risk and access to resilience-building resources, foregrounding questions of justice. Fourth, data and technology play a central role in defining and measuring resilience and its values, yet they also introduce new biases and power asymmetries that require urgent address.

These insights suggest that advancing urban resilience requires moving beyond technocratic approaches to risk management, and into an exercise in future-making. It demands a more integrated framework that foregrounds public value, strengthens institutional coordination, embeds equity, and critically engages with the politics of knowledge and data.

Why Resilience?

"The definition of resilience has become so broad as to render it almost meaningless ... resilience has become an umbrella concept for a range of system attributes that are deemed desirable."[i]

Resilience has become a key driving concept in contemporary urban planning and policy, yet its meaning remains contested.

At its most basic level, urban resilience is defined as the capacity of cities to withstand, adapt to, and recover from shocks. This ability is a long-standing feature of our societies and a fundamental part of what it means to be human. What is notable is how resilience has, over recent decades, become an explicit object of governance, planning, and policy intervention. Resilience has come to function as a flexible, "catch-all" category for a broad set of policies aimed at managing risk and uncertainties. Urban resilience thus maintains a status of useful ambiguity, which enables coordination across disciplines, scientific and policy domains, and scales of governance in complex urban systems. This ambiguity is helpful, but it also produces challenges.

Discerning the outcomes of resilience interventions is difficult.

Resilience is stretched to encompass an expansive range of desirable system attributes, and as a trade-off, it risks losing analytical precision and political clarity.
The resulting ambiguity makes questions of measurement and accountability difficult to resolve. It also means that resilience can be mobilised by different actors to advance competing interests, reflecting unequal capacities to define what resilience means and how it should be pursued. The pursuit of resilience today is therefore a site of negotiation over whose knowledge, priorities, and values take precedence.

Recognising this friction raises a broader question about the value of resilience itself.

If resilience is already an inherent human and societal capacity, what is gained when it is reframed as a planning paradigm? Dissecting urban resilience requires attention not only to whether interventions produce desirable outcomes, but also to the forms of value they seek to create, the actors who advance particular visions of resilience, the groups who benefit and the ones who are disadvantaged by it. Tensions arise between short-term and long-term resilience, between measurable returns such as ROIs and less tangible concerns such as equity and collective well-being. Within these tensions, the politics of urban resilience start to become clear.

The challenges of defining and evaluating urban resilience intersect with the growing complexity of urban conditions.

Our cities are under mounting pressure from intersecting threats, such as escalating climate uncertainty, deepening socio-spatial inequalities, and the rapid proliferation of data-driven interventions and solutions.

To address rising concerns about the state of urban resilience around the world, in July 2025, SMU hosted the fourth iteration of its City Dialogues event series.

A roundtable panel followed by three parallel discussion sessions were centred around the question “What is the value of urban resilience?” and invited perspectives from the academic, industry, and government spheres. As an official partner event of the 2025 World Cities Summit, City Dialogues took place in the host city Vienna – fittingly, in the midst of a heatwave. The three discussion sessions focused on three intersecting pressures that shape resilience in cities: climate uncertainty, socio-spatial inequality, and technological acceleration.

In the past year alone, millions of people across Southeast Asia were affected by environmental disasters – floods and landslides in Indonesia, Malaysia, Thailand, Vietnam and the Philippines; a 7.7-magnitute earthquake in Myanmar; severe heatwaves across the entire region. The rate and intensity of catastrophes caused by climate change is growing, leaving cities and communities with little time to recover from one shock before being struck by another. In such times of perpetual crises, resilience thinking is of critical importance to how we prepare our cities to adapt to, recover, and learn from shocks.

Why now?

In what follows, we synthesise the key insights from City Dialogues Vienna,

identifying the tensions, convergences, and future directions that emerged. To better understand how resilience works in practice, this white paper draws out the following cross-cutting themes that interrogate how resilience is *justified, implemented, distributed, and measured.*

1

Economic Value

Resilience is often justified through economic logics, but existing valuation frameworks struggle to capture broader social and environmental benefits. What counts gets protected, but what about the things that cannot be counted?

2

Governance & Participation

Resilience is ultimately a coordination challenge. What institutional arrangements, cross-sector coordination, and accountability are needed to reify and implement resilience?

3

Inclusion

Resilience is unevenly distributed and shaped by structural inequalities. The question is not whether cities are becoming more resilient, we should be asking: “Resilient for whom?”

4

Data & Technology

Technology facilitates and measures resilience but in the process it actively shaping what resilience means. We should be shifting our attention from technical concerns to questions of power – who wields the technology?

As climate shocks drive more than $300 billion in annual losses worldwide,[ii] resilience is increasingly being framed not only as a public necessity but as an economic opportunity. Insurers, investors, and city governments are converging around a shared proposition: resilience pays.

This logic has fuelled the rapid growth of resilience-oriented financial instruments, from green bonds and blended finance mechanisms to resilience funds and impact investing. Resilience is increasingly treated as an investable asset class capable of protecting infrastructure, securing supply chains, and stabilising local economies. In this framing, resilience functions much like insurance – an upfront investment made to reduce future losses. Economic valuation frameworks have been remarkably effective at bringing resilience into boardrooms, investment portfolios, and policy agendas. Cost-benefit analysis, return-on-investment calculations, and disaster loss accounting provide a common language through which governments and private actors can justify action. These tools matter. Without a credible business case, many resilience projects would struggle to attract funding.

Valuing resilience beyond the business case.

01

At the same time, what can be measured is not always synonymous with what matters. Frameworks such as the “triple dividend” of resilience seek to move beyond avoided losses by recognising wider social and environmental benefits. Yet these dimensions remain difficult to quantify. It is far easier to calculate the cost of a flooded road than to assess the value of strengthened community networks, improved institutional trust, or enhanced social cohesion. The result is a persistent tendency to privilege visible and measurable outcomes while overlooking less tangible, yet equally significant, forms of value.

> Mozambique’s enhanced early warning system (EWS), developed in the aftermath of the devastating Cyclone Idai in 2019, offers a glimpse into what the triple dividend of resilience is. First, the EWS led to substantial avoided losses: during the 2023 Cyclone Freddy, advance forecasts and coordinated evacuations reduced fatalities and cut economic damages by an estimated 83% compared to Idai. Second, the stabilisation of risk has led to increases in local investment, as households and small enterprises operate under a greater sense of safety. Third, the EWS has generated social co-benefits. The continuous community-based engagement required to operationalise the EWS has strengthened local governance capacities, expanded the participation of women and marginalised groups, and fostered trust between citizens and government actors.[iii]

This challenge is particularly acute when resilience is being shaped by market logics. Financial instruments can mobilise capital, but they also direct attention toward projects capable of generating measurable returns. The danger is that resilience becomes defined by what is investable rather than what is socially necessary.

Questions also remain about who benefits from resilience dividends and where such models are most effective. Strategies that rely on sophisticated financial markets, strong institutions, and long-term investment horizons are far more accessible to wealthier cities than to those facing the greatest climate risks and the fewest resources.

Cities have become increasingly adept at pricing risk, but far less capable of valuing trust, social cohesion, ecological health, or collective wellbeing. This is why it is so important to articulate resilience through the lens of public value creation, extending beyond economic returns to focus on the production of collective goods. Only by integrating these dimensions can resilience move beyond a technocratic exercise in risk management toward a more substantive project of urban transformation. This is a project that is far more legible and justifiable to investors.

Resilience as a coordination opportunity.

Many solutions fail not because of inadequate technology or lack of resources, but because institutions struggle to coordinate action across sectors, scales, and communities. Resilience can bridge these divides by providing a shared framework through which diverse actors negotiate uncertainty, align priorities, and imagine collective futures. Its value lies in creating a common language for action among stakeholders with different interests, capacities, and short-term/long-term priorities.

Yet translating this shared vision into meaningful implementation remains a persistent challenge, particularly in relationships between governments and citizens where unequal power, resources, and decision-making authority can limit genuine collaboration. Many participatory processes remain largely symbolic. Communities may contribute detailed, contextually grounded recommendations, only for those insights to lose momentum as they move through institutional channels. Bureaucratic inertia, political risk, competing priorities, and vested interests can all impede implementation, with governance systems themselves becoming resistant to change over time.

In 2025, a local government authority in London overlooked substantial community input when implementing a low-traffic neighbourhood scheme, even when their formal consultation procedures appeared to have been thoroughly followed. In practice, the form that was supposed to gather community input focused on how to implement the scheme, not whether it should go ahead. Additionally, the state actors complicated the processes for residents to submit the form. A local resident group provided a detailed report raising concerns, but it was not meaningfully considered – ultimately leading to a court ruling that the city council had acted unlawfully.[iv]

Communities want to know that being heard will make a difference. The distinction between consultation and co-production is therefore critical. Consultation often treats communities as sources of information. Co-production recognises them as partners in shaping outcomes. It acknowledges that experiential, tacit, and local knowledge are not alternatives to technical expertise but essential complements to it. When participation moves beyond information gathering and towards shared problem-solving, it can improve both the quality and legitimacy of resilience interventions.

Meaningful engagement can deepen public understanding of risk, increase awareness of difficult governance trade-offs, and strengthen trust between institutions and communities. It can also foster a greater sense of ownership over resilience measures, improving their long-term uptake and effectiveness. Restoring agency to communities does not diminish the responsibility of public institutions; rather, it requires ongoing mechanisms through which local knowledge, institutional capacity, and public priorities can be brought into alignment. Transparency is key: government actors should communicate not only the benefits of interventions, but also their potential downsides, and invest in educating the public accordingly.

Yet participation is not automatically inclusive. The capacity to engage is unevenly distributed, shaped by factors such as education, income, gender, language, and access to information. These inequalities influence who participates, whose knowledge is recognised, and whose priorities are reflected in final decisions. Without careful attention to these asymmetries, participatory approaches risk reproducing the very vulnerabilities they seek to address.

Addressing this challenge calls for creative and innovative approaches to engagement that can reach communities who are often excluded from conventional participatory processes. Local governments are particularly well positioned to drive such experimentation. Often more flexible and adaptive than national-level institutions, they can act as hubs of innovation in participatory practice, testing new formats of engagement and tailoring them to local contexts. Successful local initiatives can then scale beyond their immediate settings, exerting influence on national governance structures and contributing to broader systemic change from the ground up.

> *In Tromsø, one of Norway's fastest growing cities, a municipal planning initiative experimented with a wide range of participatory methods: digital mapping platforms, public workshops, cultural events and youth-led projects. This variation in engagement methods served to broaden participation beyond typical stakeholders and managed to engage new voices in shaping urban futures. While not all inputs were directly translated into formal plans, the diverse and creative formats of engagement expanded who could participate and how.*[v]

02

Resilient for whom?

Resilience is often presented as a universal good, yet resilience is never distributed evenly. The communities with the fewest resources are frequently expected to bear the greatest burden of adaptation, despite having the least capacity to do so.

Resilience by design?

This is why there is no such thing as "resilience by design." Every resilience strategy reflects assumptions about which risks matter, whose vulnerabilities are prioritised, and what outcomes are worth protecting. Even when interventions appear universal, exposure to risk and the capacity to respond remain profoundly shaped by social and economic conditions. Income, gender, disability, citizenship status, housing security, and employment conditions all influence how individuals experience and recover from shocks.

03

These differentiated vulnerabilities are systemic. They are produced through the same political, economic, and institutional arrangements that shape everyday urban life. Resilience cannot therefore be separated from the broader structures that distribute risk unevenly across society.

Social cohesion emerges as a critical, yet often under-recognised, dimension of resilience. While resilience discussions frequently focus on infrastructure, finance, and technology, the strength of social relationships can be equally consequential during crises. Communities characterised by trust, reciprocity, and strong social networks are often better able to mobilise resources, share information, support vulnerable residents, and coordinate collective responses. In this sense, social cohesion is a critical component of resilience itself.

A city cannot claim to be resilient if resilience remains a privilege rather than a public good. This requires moving beyond aggregate measures of resilience to examine who benefits, who remains exposed, and whose futures are being secured. It also requires explicit mechanisms to evaluate the distributive impacts of resilience interventions and to redirect resources where vulnerabilities are greatest.

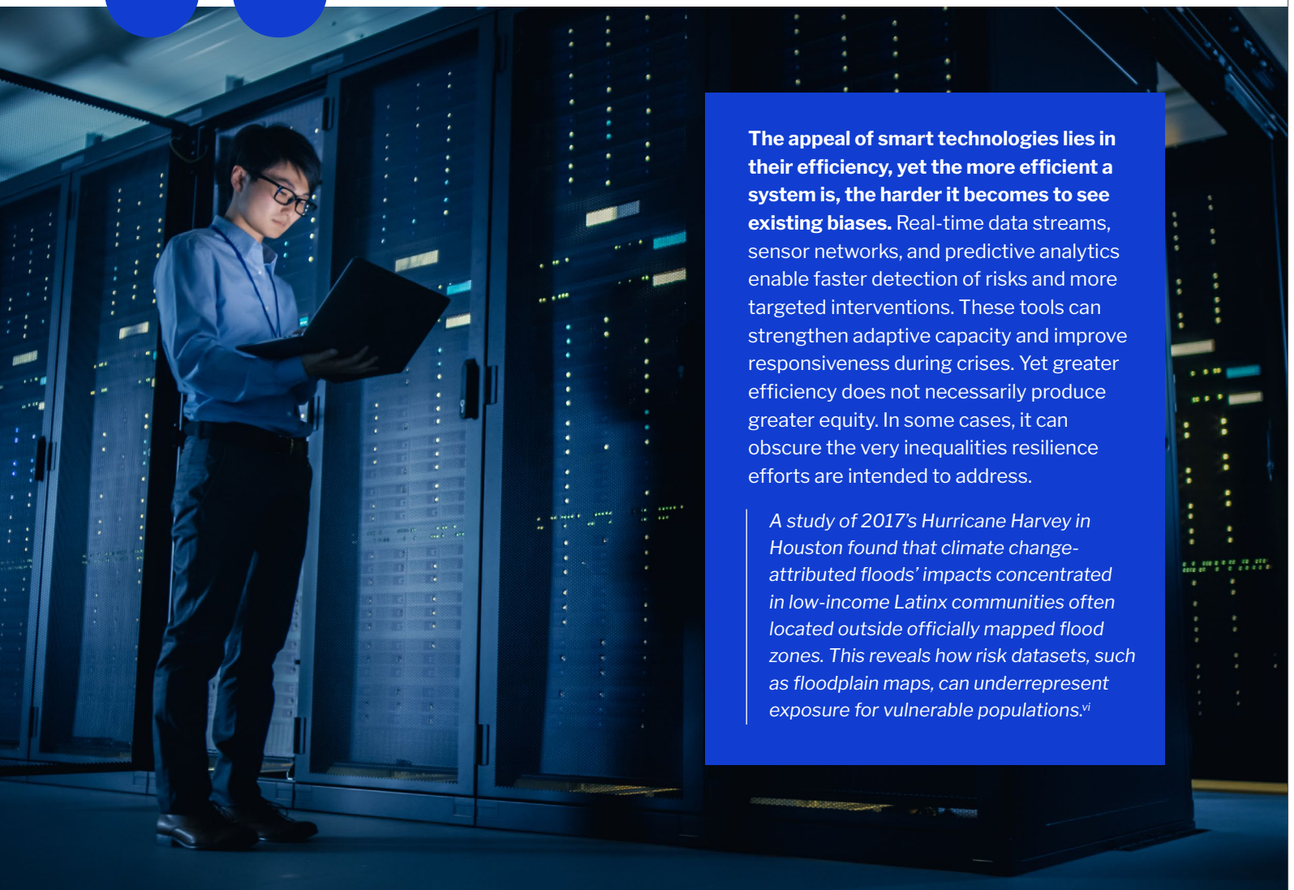
Ultimately, resilience is inseparable from questions of justice and intersectionality. It pushes us to concern ourselves with more than the question of how to persist, but also why we need to persist, and what might a better city look like – a city where no one is forced to live in precarity.

During COVID-19, migrant workers in Singapore faced disproportionate risks despite the universal policies that were in place to protect everyone. Existing resilience strategies did not address structural elements such as housing conditions in dormitories and employment precarity, leaving migrant workers systematically more exposed, even within an otherwise effective system.

The pitfalls of data-defined resilience.

By now we know that technology is neither neutral nor merely instrumental, and digital systems redistribute power by shaping what is knowable. Data infrastructures prioritise certain forms of information while rendering others invisible, influencing whose risks are recognised and whose needs are addressed. Thus, we must acknowledge that technology can reshape decision-making processes and even the core principles of resilience.

> **Data does not simply measure resilience – it helps define what resilience means.**



The appeal of smart technologies lies in their efficiency, yet the more efficient a system is, the harder it becomes to see existing biases. Real-time data streams, sensor networks, and predictive analytics enable faster detection of risks and more targeted interventions. These tools can strengthen adaptive capacity and improve responsiveness during crises. Yet greater efficiency does not necessarily produce greater equity. In some cases, it can obscure the very inequalities resilience efforts are intended to address.

> *A study of 2017's Hurricane Harvey in Houston found that climate change-attributed floods' impacts concentrated in low-income Latinx communities often located outside officially mapped flood zones. This reveals how risk datasets, such as floodplain maps, can underrepresent exposure for vulnerable populations.*[vi]

These challenges are compounded by persistent gaps in urban data. Informal settlements, undocumented populations, and marginalised communities are frequently underrepresented in official datasets, creating blind spots in planning and resource allocation. Algorithmic systems can further entrench inequalities by reproducing assumptions embedded within historical data. At the same time, expanding data collection raises legitimate concerns around surveillance, privacy, and accountability, particularly when monitoring technologies are deployed without adequate safeguards or accountability.

Image source: PUB, Singapore's National Water Agency

The growing influence of technology also risks narrowing how resilience problems are understood. Digital interventions are often attractive because they are visible, scalable, and comparatively quick to implement. This can create a tendency to prioritise technological optimisation over the slower and more politically difficult work of addressing structural vulnerabilities. The result is a form of technological solutionism in which the appearance of progress masks the persistence of deeper social, economic, and institutional challenges.

This tendency is reinforced by a temporal mismatch between technological and urban systems. Technology operates on rapid innovation and deployment cycles. Urban systems, by contrast, evolve over long-term infrastructural timelines, requiring sustained investment and institutional continuity. The "seductiveness" of technological solutions lies precisely in this alignment with immediacy. This is not to say that technological solutions cannot address slow-moving, structural issues and risks. To do that, technological solutions need to be intentional, transformative, and aware of their limitations.

This is ultimately a governance issue, not merely a technical one. The future of urban resilience depends not only on better data, but on more accountable systems for producing, interpreting, and governing knowledge. Technology is most effective when it is embedded within broader social and institutional processes rather than treated as a substitute for them. ata infrastructures prioritise certain forms of information while rendering others invisible, influencing whose risks are recognised and whose needs are addressed. Thus, we must acknowledge that technology can reshape decision-making processes and even the core principles of resilience.

04

Core Principles and Recommendations

The following recommendations summarise the insights across the four themes.

1

Reframe how resilience is valued

- Champion existing plural valuation frameworks that account for economic, social, and environmental forms of resilience value.
- Move beyond cost-benefit logics to capture long-term, indirect, and non-quantifiable benefits such as trust, social cohesion, and public confidence.
- Evaluate resilience investments according to the public value they generate, not solely on their financial returns.
- Recognise that what is measured shapes what is prioritised, and ensure that valuation frameworks do not marginalise less visible forms of value.

2

Strengthen governance and coordination

- Treat participatory governance as a core implementation infrastructure.
- Ensure that community input is institutionally embedded in decision-making and resource allocation processes.
- Strengthen integrated governance across sectors, scales, and institutions to reduce fragmentation.
- Build durable coordination mechanisms that align public, private, academic, and community actors around shared resilience goals.

3

Institutionalise inclusive participation

- Embed equity as a core metric for evaluating resilience outcomes.
- Develop tools to assess how resilience investments are distributed across different populations.
- Prioritise the needs of vulnerable groups in the design and implementation of resilience interventions.
- Strengthen social cohesion and community networks as essential components of resilience rather than secondary social outcomes.

4

Reposition technology and data

- Recognise technology as non-value neutral.
- Deploy methods to critically assess data gaps, algorithmic bias, and unequal access in digital resilience strategies.
- Align technological innovation with locally grounded knowledge, lived experience, and contextual realities.
- Establish stronger governance mechanisms for data collection, interpretation, accountability, and public oversight.

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