

ISRM

CENTRE FOR THE STUDY OF WICKED PROBLEMS

DE MONTFORT UNIVERSITY LEICESTER

CITIES AT THE FRONTLINE

FROM URBAN RESILIENCE TO ADAPTIVE CITIES IN AN AGE OF CONTINUOUS DISRUPTION

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EXECUTIVE SUMMARY

Cities have always concentrated opportunity and risk. They are centres of economic activity, political power, cultural exchange, innovation, and social transformation, and places where infrastructure, people, institutions, ecosystems, and increasingly complex technological systems are compressed into tightly connected spaces.

That concentration now matters in a new way. Climate change, extreme heat, ecological degradation, infrastructure fragility, geopolitical instability, migration, demographic change, inequality, technological disruption, misinformation, declining institutional trust, and changing disease patterns are not arriving in cities as isolated problems; they interact as wicked problems. A heatwave manifests simultaneously as an energy problem, a public-health problem, a labour-productivity problem, a water problem, and an inequality problem. Flooding becomes a housing, transport, insurance, health, education and supply-chain problem. A cyberattack can become a mobility, healthcare, financial-services and public-confidence crisis. A disruption in one infrastructure network cascades almost instantaneously through others.

The defining urban challenge of the coming decades may therefore not be any single risk. It is the interaction between risks within increasingly complex, tightly coupled and stressed urban systems and this requires a shift in thinking and action.

Much of contemporary urban resilience has understandably concentrated on preparing cities to withstand shocks and recover afterwards. This remains essential as a world characterised by accelerating climate change, ecological pressures, geopolitical fragmentation, technological transformation and repeated disruption raise a harder question: what happens when disruption is no longer an exceptional event from which a city recovers, but part of the environment in which the city must continuously operate?

The Centre for the Study of Wicked Problems (CSWP) argues that this requires shifting the conversation from resilient cities to adaptive cities. An adaptive city is not simply one that can absorb shocks, but one that can anticipate change, learn, reorganise, and maintain legitimacy, inclusion, and essential functions under persistent uncertainty.

This paper develops that proposition by building on the 2026 ISRM-De Montfort University webinar series Reimagining Urban Futures: Cities 2050, which progressed through three interconnected questions: 1) what risks are confronting cities now; 2) what capabilities make cities resilient; and 3) what would it mean to move beyond resilience towards regenerative urban futures? It positions that argument against the existing international architecture of urban resilience and climate work (Part I), develops a working definition of strategic urban risk (Part II), and proposes a five-part Adaptive Cities Framework together with a flagship Urban Strategic Risks Report (Part III).

The webinar series conversations suggested concurrent and simultaneous progressions from risk to resilience, then to adaptation, and finally to regeneration. It identified propositions that require greater attention in urban risk thinking: that cities should be understood as complex adaptive systems rather than collections of disparate sectors; that nature and trust should both be understood as infrastructure; that communities are actors within resilience systems rather than beneficiaries of institutional interventions; that young people are architects of urban futures rather than merely future leaders; and that urban resilience must be assessed through questions of equity and legitimacy as well as infrastructure performance.

This paper proposes Cities at the Frontline as the ISRM Centre for the Study of Wicked Problems' flagship urban programme. Its central question is: how can cities remain legitimate, inclusive, functional, healthy and adaptive when disruption becomes continuous? Rather than suggest the creation of another generic city ranking, resilience index, or catalogue of global risks, Cities at the Frontline seeks to develop a distinctive urban strategic-risk perspective focused on the interactions, dependencies, and governance capabilities that determine how risks materialise within cities.

The programme would generate two complementary flagship products: an annual Urban Strategic Risks Report identifying the major forces reshaping urban risk and how they interact within different urban contexts, and an Adaptive Cities Framework providing cities with a practical methodology for understanding their risk ecosystem, identifying critical dependencies, testing adaptive capacity and developing interventions. The ambition is therefore not to publish another report about cities but to build a global programme through which cities, researchers, practitioners, and communities can better understand how urban systems behave under pressure and how they might adapt before that pressure becomes breakdown.



Part I.

EXISTING ARCHITECTURE

1. CITIES AT THE FRONTLINE

More than half of humanity already lives in urban areas. The World Health Organization estimates that the urban share of the global population will increase from more than 55 per cent today to approximately 68 per cent by 2050 (WHO, 2026).

However, cities matter far beyond population, as they concentrate infrastructure, capital, institutions, communications, supply chains, cultural influence, and political authority. They are simultaneously engines of economic development and concentrations of vulnerability. UN-Habitat's World Cities Report 2024 describes cities as being on the frontline of climate change: highly exposed to flooding, heatwaves, storms, and drought while also generating a considerable proportion of global emissions (UN-Habitat, 2024).

The language of the frontline is useful because cities increasingly are the places where global systemic change becomes local lived experience: climate change becomes heat in someone's home; food insecurity becomes the price of dinner; energy insecurity becomes a blackout; economic instability becomes unemployment; misinformation becomes mistrust between communities; and national policy becomes the service that either does or does not reach someone's street. Cities are the point at which abstract global risk becomes tangible, making them particularly important for strategic-risk analysis.

A significant international architecture already addresses cities. UN-Habitat examines sustainable urbanisation and increasingly climate action; UNDRR's Making Cities Resilient 2030 initiative provides extensive tools for assessing disaster resilience (including the UNDRR Disaster Resilience Scorecard that contains 117 indicator criteria covering multiple dimensions of disaster resilience (UNDRR, 2026); the World Bank has developed urban resilience diagnostics, and the WHO increasingly connects urban form with public health. Recently, C40, the Global Covenant of Mayors, and other city networks have developed sophisticated climate-risk and adaptation tools.

These initiatives are valuable and should not be duplicated. The question for CSWP is therefore not: can we create another resilience framework? It is: what interconnections are currently missing, and how can we contribute as a risk management-oriented research centre?

2. POSITIONING CITIES AT THE FRONTLINE: A SHORT LITERATURE REVIEW

Before setting out its own argument, CSWP situates Cities at the Frontline within the existing field, so the programme's contribution is additive rather than duplicative.

2.1 UN-HABITAT

UN-Habitat's World Cities Report 2024 provides the most comprehensive account of the relationship between cities and climate change, framing cities as both major emitters and highly exposed populations, and arguing for resilience approaches that are holistic and negotiated with communities rather than imposed on them (UN-Habitat, 2024). Its strength is breadth and normative clarity on equity; its focus is climate and sustainable urbanisation rather than the wider strategic-risk interactions (political-economic, technological, and social) that this paper argues are now central to urban functionality.

2.2 UNDRR

UNDRR's Making Cities Resilient 2030 initiative and its Disaster Resilience Scorecard for Cities give cities the most operationally mature assessment tools available, structured around the Ten Essentials and, in detailed form, 117 indicator criteria (UNDRR, 2017–2026). UNDRR's own Action Guide (UNDRR, 2023) is candid about the central limitation of this architecture: assessment is well developed, but many cities still struggle to move from diagnosis to prioritised, resourced action. This is precisely the gap between measurement and action that Cities at the Frontline's stress-testing and action-partnership components are designed to address.

2.3 WHO

WHO's urban health and climate-health profiling work (WHO, 2026; WHO Climate Change and Health Programme) connects urban design, heat, pollution, housing and transport to health outcomes with a rigour that general resilience frameworks rarely match. Its focus, appropriately, is health as an outcome variable rather than the wider system of infrastructure, governance and trust interactions that determine whether a city can adapt over time.

2.4 C40 AND THE GLOBAL COVENANT OF MAYORS

City networks such as C40 and the Global Covenant of Mayors have built sophisticated climate-risk and adaptation planning tools and, critically, a practitioner community of mayors and city officials who can act on findings. Their comparative advantage is political traction and implementation networks; their frameworks are substantially climate-mitigation and adaptation-planning tools rather than general-purpose strategic-risk instruments covering technology, social cohesion, informality and governance together.

2.5 THE WORLD ECONOMIC FORUM'S GLOBAL RISKS REPORT

The Global Risks Report provides an authoritative annual account of risk at the level of the international system, ranked by likelihood and severity over multiple time horizons. It is a valuable diagnostic of the global risk landscape but is explicitly not designed to be read at city scale. It does not offer analysis at the city level and its risks are framed nationally and globally, and it does not examine how those risks interact within the particular institutional, infrastructural and social fabric of a given city.

THE GAP THAT EXISTS

Read together, these bodies of work are strong on: disaster-resilience assessment (UNDRR); climate and equity framing (UN-Habitat); health outcomes (WHO); political mobilisation and implementation networks (C40/GCoM); and global risk identification (WEF).

What remains comparatively underdeveloped is an explicitly holistic, intersectional, and interactional strategic-risk account of cities: one that treats a city's political economy, informality, digital dependency, infrastructure, social trust, and governance capacity as parts of the same analytical system as its physical infrastructure and climate exposure. In addition, a gap remains in how combinations of pressures, not single hazards, threaten a city's long-term functionality, legitimacy, cohesion, prosperity, and habitability without exploring a systemic response. Whilst the proposition is not to address this because of the capacity implications, the CSWP can be the intersection between the highlighted sources of data and present a different more intersectional analysis.

That is the specific, defensible space this paper proposes for Cities at the Frontline. It is not about a better resilience scorecard, a better climate report, or a better health index, but understanding the connective layer of strategic-risk interaction analysis that sits between and across them.



Part II.

UNDERSTANDING STRATEGIC URBAN RISK

3. FROM RISK REGISTERS TO RISK SYSTEMS

Traditional risk management has often been organised around identifiable risks. This assumes a linear process: identify a risk, assess probability and impact, allocate responsibility, and develop mitigation measures. The model's linearity remains useful when risks are sufficiently bounded. However, with the growing complexity and intersectionality of risks, often classified as wicked problems, the traditional risk models do not necessarily work.

Cities increasingly operate within what might be described as risk systems rather than collections of independent risks. The 2026 Reimagining Urban Futures 3 webinar series conducted by ISRM and DMU repeatedly returned to this problem. Participants described how extreme heat simultaneously affects energy demand, water consumption, outdoor labour, public health, undermines traditional coping mechanisms and means of economic and social integration, transport and air quality. They discussed how communications infrastructure failure could disable banking, commerce and public services. Flooding was described not simply as a meteorological event but as an interaction between rainfall, drainage, land use, infrastructure maintenance and urban development.

The first webinar consequently argued that cities need to be understood as living systems rather than simply engineered structures. The second extended this argument through systems thinking and by recognising interconnected environmental and social risks. The final webinar asked what these relationships mean for planetary health, inequality and long-term urban flourishing.



These arguments have significant implications. Risk assessment must increasingly examine dependencies, interactions, feedback loops, thresholds and cascading consequences. For example, a transport system depends upon electricity. Electricity may depend on water, while water infrastructure may depend on digital control systems. Hospitals depend upon all three, and citizens depend upon hospitals. Government legitimacy depends upon whether those systems continue functioning during crisis. Therefore, what initially appears to be an infrastructure problem can become a governance problem. This becomes a wicked problem.

4. THE WICKED CITY

The concept of the wicked problem emerged from Rittel and Webber's seminal 1973 paper, which argued that many social-policy problems cannot be treated like bounded scientific problems. Their causes are contested, stakeholders understand the problem differently, interventions alter the system being addressed, and a final solution is rare.

Cities are perhaps the quintessential wicked systems. They contain multiple overlapping systems of governance and authority. A city's formal government may be only one component of how the city actually functions, with businesses operating infrastructure and community organisations providing services, and religious institutions generating trust and social support. Additionally, informal economies sustain livelihoods; transport may combine formal systems with informal operators; and neighbourhood organisations, sports clubs, cultural associations and social networks connect people in ways that official institutional maps rarely capture. Individuals and communities mobilise through these complex networks. Cities also contain populations considerably more complex than official residential statistics imply: permanent residents, commuters, migrants, tourists, seasonal workers, refugees and informal populations may all use the city simultaneously in different ways and have different stakes in its functioning

Cities at the Frontline therefore proposes treating urbanity as a phenomenon rather than an administrative boundary. The task is not simply to ask what institutions formally exist but to understand: who and what actually makes the city work?

A simple answer may point to optimal systems of efficiency. Whilst efficiency has delivered extraordinary economic benefits, it is not synonymous with resilience as systems operating continuously near maximum capacity have little room to absorb disruption.

The Reimagining Urban Futures discussions repeatedly returned to this tension. A resilient system requires some degree of redundancy, diversity and spare capacity. Spare capacity provides elasticity, which in turn creates time, which provides space for adaptation and decision-making.

The strategic question therefore becomes not how efficiently the city operates when everything works, but what happens when something stops working and, increasingly, what happens when several things stop working simultaneously.

Urban emergency planning has historically been structured largely around events: earthquakes, floods, storms, terrorist attacks, pandemics, power outages. While these remain important, some of the most consequential changes affecting cities are not discrete events; they accumulate. Groundwater levels change, and infrastructure deteriorates. Housing costs rise, making homes harder to afford. Air quality worsens, and temperatures increase. Biodiversity declines, leading to environmental loss. Public trust diminishes, and insurance options become scarce. This expands inequality, thereby deepening political divisions. None necessarily produces a single moment identifiable as “the crisis”, instead, they gradually change the operating environment of the city.

This suggests a distinction between shock risk and system stress. A city may possess sophisticated capabilities for responding to a major emergency while simultaneously becoming progressively more fragile because of underlying stresses. This fragility is mirrored in changing social networks where previously available resilience and coping networks and systems are eroded. The relevant question is therefore not only whether the city can survive an event. It is whether the underlying system is improving or deteriorating.

5. CLIMATE CHANGE AS A THREAT MULTIPLIER, PLANETARY HEALTH AND RESILIENCE

Climate change illustrates the limitations of sectoral risk thinking. UN-Habitat emphasises that climate change interacts strongly with existing inequalities and that marginalised urban populations often experience the greatest impacts while having the fewest resources to respond (UN-Habitat, 2024). WHO similarly highlights the interconnected relationship between urban design, heat, pollution, housing, transport and health.

Climate change should not just be listed as another hazard in a risk register. It fundamentally alters the conditions that influence other risks: heat reduces labour productivity, drought impacts food and water supplies, flooding damages housing and spreads disease, extreme weather influences insurance and investment, climate-driven migration affects housing and services, energy transitions impact labour markets and infrastructure, and ecological degradation harms health. Climate therefore acts simultaneously as a hazard, an amplifier, and a system transformer. This is why adopting a planetary-health perspective is becoming more important for strategic risk. It is based on a simple premise: that human health and civilization rely fundamentally on healthy natural systems.

The planetary boundaries literature makes the scale of the challenge increasingly clear. Richardson et al. (2023) found that six of nine planetary boundaries had already been transgressed. The most recent Stockholm Resilience Centre assessment, published in 2025, found that a seventh boundary (ocean acidification) has now also been crossed, meaning seven of nine planetary boundaries are transgressed as this paper is written (Stockholm Resilience Centre, 2025). The direction of travel, not merely the count, matters: pressure on the Earth's safe operating space continues to grow rather than stabilise.

For cities, this shifts the focus of resilience. A city cannot be truly resilient if the ecological systems that provide its food, water, energy, climate stability, and health are growing less resilient. Urban resilience extends beyond municipal borders. The city relies on hinterlands, watersheds, food and energy systems, ecosystems, and supply chains that reach well beyond its administrative limits.

This means that urban strategic risk must account for planetary dependencies. It also requires reconsidering infrastructure.



6. RECONSIDERING INFRASTRUCTURE

A key insight from the webinar series was that cities should expand their views of infrastructure. While roads, bridges, and power grids are traditional examples, infrastructure should also include wetlands, trees, healthy soil, watersheds, vegetation, and natural drainage systems. Nature-based systems cool cities, absorb rainfall, reduce flood risk, store carbon, support biodiversity, and contribute to physical and mental wellbeing. When cities destroy these systems, they often spend significant sums to recreate their functions through engineered infrastructure.

The proposition for adaptive cities is therefore stronger than simply increasing urban green space. It is to recognise ecological functionality as part of the city's critical infrastructure.

The same argument applies to trust. Urban risk frameworks traditionally prioritise physical assets because they are visible and measurable. Trust is harder to quantify, but it is operationally consequential. Trust affects citizens' willingness to follow warnings, cooperate with authorities, believe information, assist neighbours, accept emergency measures, perceive institutions as legitimate, and engage in adaptation programs. The COVID-19 pandemic showed how quickly public health actions can hinge on legitimacy, identity, misinformation, and trust.

A technically capable city with deeply fractured social relationships may therefore be significantly less resilient than its physical infrastructure suggests. Cities at the Frontline consequently proposes treating trust, legitimacy, belonging and social cohesion as critical forms of urban infrastructure.

7. THE ROOTS OF RESILIENCE AND ADAPTATION

If we need to reconsider infrastructure, we cannot understand resilience solely through formal institutions. Communities possess what might be described as the roots of resilience: culturally embedded relationships, institutions, practices and networks through which information is shared, resources mobilised and collective action organised. These networks may include neighbourhood groups, faith institutions, youth organisations, sports clubs, schools, businesses, cultural organisations, volunteers, diaspora networks and informal community leaders. They become particularly visible during a crisis. Formal emergency-management structures may be important, but local people often have the immediate knowledge, relationships, and capabilities needed to respond before external assistance arrives.

This indicates that cities should focus on mapping not just critical infrastructure, but also key relationships: identifying trusted individuals, connectors between separated communities, local knowledge holders, mobilizers, pathways of information flow, gaps in communication, and those absent from formal planning. Addressing these questions is essential for building adaptive capacity.

The final webinar of the 2026 series emphasized a key issue: urban risk is unevenly distributed. Residents in the same city can face hazards very differently. For instance, during extreme heat, one person might stay indoors with air conditioning, have private transportation, and live in well-insulated housing. Meanwhile, another might work outdoors, depend on crowded public transit, reside in poorly ventilated homes, and have limited water or healthcare access. The WHO supports this disparity, noting that urban environmental exposures and their health impacts are heavily influenced by city design and access to housing, services, and infrastructure. Similarly, UN-Habitat stresses that city resilience depends on protecting its most vulnerable residents, emphasizing that resilience must center on equity.

The strategic implications are significant. A city cannot be deemed resilient simply because its infrastructure remains operational. We must ask: operational for whom? Whose recovery is priviledged?This brings legitimacy into the risk equation. Persistent inequality in exposure, protection and recovery can itself become a strategic risk by eroding trust, cohesion and institutional legitimacy.

8. YOUNG PEOPLE AND THE INTERGENERATIONAL CITY

Cities at the Frontline must recognize the intergenerational nature of urban risk. Many infrastructure and planning choices made now will shape cities for decades, and today's young people will inherit the impacts of those decisions.

Yet youth participation often remains symbolic. Young people are invited to consultations, asked to describe the future they want, and frequently referred to as “leaders of tomorrow”. But tomorrow is precisely what current planning decisions are shaping.

An adaptive city should view young people as active participants (agents, architects, anchors, advocates, and amplifiers) within modern urban systems. This involves shifting from mere consultation to co-creation, from giving voice to wielding influence, and from viewing participation as a one-off event to integrating it into governance. Psychologically, this matters: climate anxiety, uncertainty, and declining trust in institutions can foster helplessness. Conversely, meaningful agency, belonging, and collective action can foster what is known as radical hope. This is not passive optimism that everything will be fine, but a resilient capacity to act productively amid uncertainty about the future.

9. FROM SMART CITIES TO WISE CITIES

Technology is poised to transform urban life through advancements like artificial intelligence, sensors, digital twins, satellite imagery, predictive analytics, and integrated data platforms. These tools enable new insights into cities, such as identifying heat islands, predicting floods, optimizing energy consumption, monitoring infrastructure, modeling transportation systems, and detecting emerging trends. However, technological complexity does not equate to resilience. Highly connected digital systems may generate new dependencies and vulnerabilities. While AI enhances decision-making, it can also introduce issues like bias, exclusion, misinformation, cybersecurity threats, and questions of accountability.

The goal should go beyond just creating a smart city. The webinar discussions emphasized a more meaningful aim: the wise city. A wise city considers not only whether technology can be implemented but also why it is being used, what it changes and its social cost, who benefits from it, and what outcomes it aims to achieve. Success is judged not only by financial returns but also by how well it promotes values such as cohesion and continuity, dignity, inclusion, trust, health, ecological sustainability, human agency, and resilience. The adaptive city treats technology as a tool rather than an ideology.



10. FROM NATIONAL STRATEGY TO LOCAL IMPACT – THE ADAPTIVE CITY

Cities play a crucial role as a bridge between national policies and everyday experiences. While national governments set the frameworks for climate action, infrastructure, migration, security, public health, and economic growth, it is at the local level that these policies are actually put into practice.

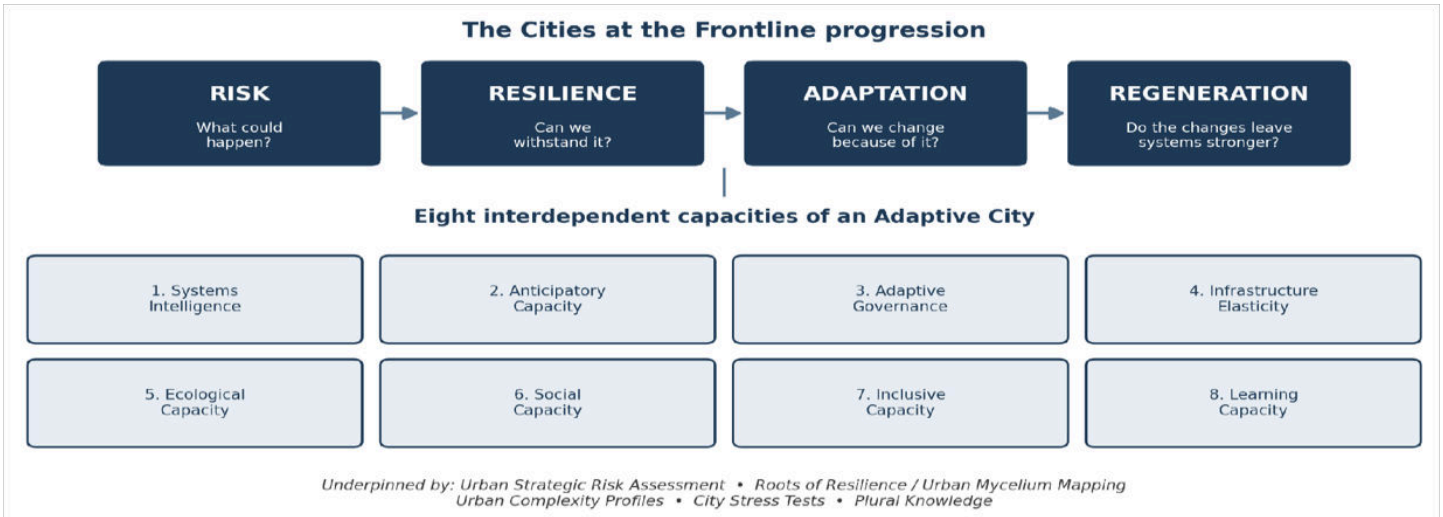
The CSWP's specialized unit, the Centre for Strategic Policy, bases its guiding principle (National Strategy, Local Impact') on the idea that strategy must connect national goals with local realities, making it highly relevant to Cities at the Frontline. A common challenge is the disconnect between strategy as officially written, how it is implemented, and how it is actually experienced on the ground. Adaptive governance demands two-way feedback: national strategies should foster local experimentation, and local insights should shape national policies. Likewise, OECD research on multilevel climate governance highlights the need for strong vertical and horizontal integration among different levels of government and institutions.

Cities can serve as policy laboratories. This requires institutional permission to experiment, mechanisms for learning from failure, and systems through which lessons can travel between cities and upwards into national policy.

This resilience remains essential but now isn't enough. Resilience typically questions: can the city withstand disruption and bounce back? Adaptation, on the other hand, asks: can the city continue to evolve and thrive as its surroundings change? The distinction is especially crucial when returning to a previous state is impossible or undesirable. Climate change exemplifies this well: a city built for historical temperature norms cannot repeatedly recover from extreme heat if such heat becomes the new normal. The fundamental operating model needs to adapt.

CSWP therefore proposes the following working definition: an adaptive city is a city capable of absorbing shocks, and of learning, reorganising and maintaining legitimacy, inclusion and essential functions under persistent change. This produces an interdependent and cyclical progression: Risk (what could happen?), Resilience (can we withstand it?), Adaptation (can we change because of it?), Regeneration (can the changes we make leave human and ecological systems stronger?), as shown in Figure 1. These should not be understood as competing models. They represent increasing and intersecting levels of ambition.





There are at least eight interdependent capabilities, summarised visually in Figure 1 above.

1. Systems Intelligence: The city understands dependencies, feedback loops and cascading risks rather than analysing sectors independently.

2. Anticipatory Capacity: The city monitors weak signals, emerging risks and future scenarios rather than relying primarily upon historical patterns.

3. Adaptive Governance: Institutions can change decisions as evidence and conditions evolve and can coordinate across departmental and jurisdictional boundaries.

4. Infrastructure Elasticity: Critical systems possess sufficient redundancy, operate at viable scale, with diversity and spare capacity to continue operating during disruption.

5. Ecological Capacity: Natural systems are recognised, protected and restored as part of the city's resilience infrastructure.

6. Social Capacity: Trust, social cohesion, community networks and informal institutions are recognised and strengthened.

7. Inclusive Capacity: The city understands how risks are distributed and ensures that adaptation does not simply transfer vulnerability onto less powerful communities.

8. Learning Capacity: The city continuously learns from disruption, experiments, communities and other cities and can translate that learning into institutional change.

These capabilities provide the beginnings of an Adaptive Cities Framework, and Cities at the Frontline adds an analytical layer on existing frameworks focused on strategic interactions. CSWP proposes defining urban strategic risk as a risk, stress, or interaction between risks that can materially affect a city's long-term functionality, legitimacy, cohesion, prosperity, health, or habitability, particularly through cascading consequences across systems.

This differs from conventional hazard analysis. It asks not simply what hazards the city faces, but: which combinations of pressures could fundamentally change how this city functions? Where are the critical dependencies? What is becoming more fragile? Where is spare capacity disappearing? Which populations are carrying disproportionate risk? Where is trust declining? Which natural systems are approaching thresholds? Which institutions are unable to adapt? What apparently minor disruption could trigger disproportionate consequences? And perhaps most importantly: what are we not currently looking at?

Part III.

THE ADAPTIVE CITY FRAMEWORK

11. FROM A GLOBAL RISKS REPORT TO AN URBAN STRATEGIC RISKS REPORT

THE URBAN STRATEGIC RISKS REPORT

The report will not attempt to compete directly with the World Economic Forum's Global Risks Report or reproduce existing global risk rankings. Its distinctive question would be: how are global systemic risks materialising, interacting and changing the operating environment of cities?

The report could become an annual global publication structured around a limited number of urban strategic-risk themes. Possible domains include:

- **Climate and Habitability:** heat, flooding, drought, water stress and changing environmental thresholds.
- **Critical Infrastructure and Systemic Dependencies:** energy, transport, communications, water, healthcare and digital infrastructure.
- **Urban Political Economy:** housing affordability, inequality, informal economies, debt, insurance and investment.
- **Social Cohesion and Legitimacy:** trust, polarisation, misinformation, exclusion and community fragmentation.
- **Demographic and Mobility Change:** migration, ageing, youth populations, commuters and transient urban populations.

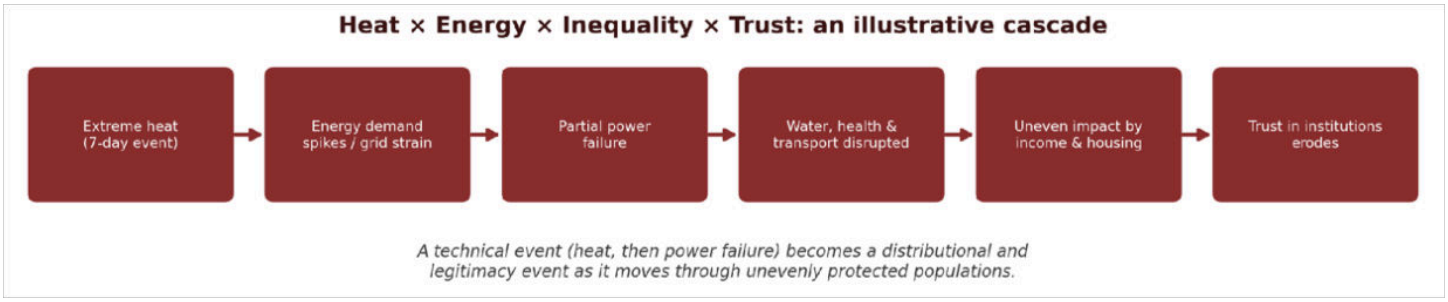


- **Technology and Digital Dependency:** AI, cybersecurity, automation, surveillance and critical digital infrastructure.
- **Health and Planetary Systems:** disease, pollution, food, biodiversity and ecological degradation.
- **Governance and Adaptive Capacity**: institutional coordination, leadership, learning and implementation capability.

The report should not simply rank threats. Its primary value would be identifying interactions between them. for example: Heat × Energy × Inequality; AI × Employment × Trust; Water × Migration × Political Legitimacy; Housing × Climate × Insurance; Misinformation × Public Health × Social Cohesion. This interaction-based approach could become one of the report's most distinctive contributions, illustrated below.

A WORKED ILLUSTRATION: HEAT × ENERGY × INEQUALITY × TRUST

To make the interaction-based approach concrete, it is useful to trace a single plausible cascade through the proposed Adaptive Cities Framework, rather than describing the framework only in the abstract.



A technical event (heat, then power failure) becomes a distributional and legitimacy event as it moves through unevenly protected populations.

Consider a seven-day extreme heat event in a mid-sized coastal city. Read through the five components of the Adaptive Cities Framework; the cascade reveals different things at each stage:

A. Urban Complexity Profile. The profile shows which neighbourhoods have older housing stock, limited tree canopy, higher rates of outdoor and informal work, static populations, limited public cooling spaces, and lower rates of air-conditioning ownership: identifying, before the heat arrives, where the same weather event will be experienced very differently.

B. Urban Strategic Risk Assessment. Heat drives air-conditioning demand, which strains the grid; a grid already operating near capacity has little elasticity, and the assessment flags energy as the binding dependency behind water pumping, hospital operation, digital services and traffic management.

C. Roots of Resilience / Urban Mycelium Mapping. When a partial power failure follows, the mapping shows which faith institutions, community organisations and informal networks are already distributing water and checking on elderly residents, often before formal emergency services can mobilise, and where such networks are thin or absent.

D. Adaptive Capacity Assessment. As disruption spreads from energy into water, health and transport, the assessment asks whether institutions can reallocate resources across departmental boundaries in real time, or whether the response is constrained by sectors that do not routinely coordinate with one another.

E. City Stress Test and Action Partnership. Because the impact is concentrated in the neighbourhoods identified in the profile, the uneven experience of the same event becomes visible and public. If official communication does not acknowledge that unevenness, or if support arrives more slowly in some neighbourhoods than others, a technical failure risks becoming a legitimacy crisis, the point at which infrastructure performance and institutional trust become the same variable.

The value of the framework, in other words, is not that it predicts this specific sequence. It is that each component forces a different, necessary question before the event occurs—turning a generic hazard ("heat") into a specific, addressable strategic-risk pathway.

BEYOND RANKINGS: THE URBAN COMPLEXITY PROFILE

The annual report should be complemented by city-level analysis. A global ranking risks suggesting that cities can meaningfully be reduced to a single number. Cities at the Frontline should resist that temptation. Instead, each participating city could develop an Urban Complexity Profile, combining quantitative indicators with qualitative intelligence concerning demographics, climate and environmental pressures, infrastructure, economic structure, informality, mobility, political economy, governance, trust, community networks, health, planetary-health dependencies, technology and emerging risks.

The purpose would not be to compare Kuala Lumpur mechanically with London, Colombo or Lagos. It would be to understand what makes Kuala Lumpur Kuala Lumpur, Colombo Colombo and Lagos Lagos. Only then can risk be meaningfully interpreted and interacted with.

MAPPING URBAN MYCELIUM NETWORKS OF RESILIENCE AND ADAPTATION

Alongside physical infrastructure, the programme should develop a method for mapping the networks through which cities actually function. This could be described as the Urban Mycelium or Roots of Resilience map.

Mycelial networks provide an appropriate metaphor because they are often largely invisible while enabling exchange, communication and survival within ecosystems. Urban systems possess similar networks, including community leaders, religious institutions, business associations, volunteer organisations, schools, youth networks, sports clubs, health workers, informal transport operators, local media, diaspora networks and digital communities.

Mapping these relationships could help identify trusted connectors, isolated populations, communication bottlenecks, potential coordination nodes, sources of local knowledge and latent resilience capacity, providing something most conventional infrastructure assessments do not: a complex and practical understanding map of the relational architecture of the city.

STRESS-TESTING THE CITY

Profiles and indicators are valuable, but adaptation ultimately requires testing assumptions. Cities at the Frontline should therefore include city stress-testing laboratories, events and scenarios that bring together city authorities, infrastructure providers, emergency services, businesses, academics, communities, and youth representatives around plausible future scenarios.

Rather than asking simply whether plans exist, the exercise would ask: what happens next? And then what? And then what? Scenario exercises like above reveal dependencies that conventional risk registers may overlook, including the point at which a technical failure becomes a legitimacy crisis.

12. AN ADAPTIVE CITIES FRAMEWORK

The eventual Adaptive Cities Framework could therefore consist of five interconnected components, moving deliberately from measurement → understanding → relationships → experimentation → action:

A. Urban Complexity Profile: What kind of city are we actually dealing with?

B. Urban Strategic Risk Assessment: Which risks and interactions threaten long-term functionality, legitimacy and habitability?

C. Roots of Resilience / Urban Mycelium Mapping: Which formal and informal relationships allow the city to function and adapt?

D. Adaptive Capacity Assessment: How capable is the city of anticipating, absorbing, learning, reorganising and changing?

E. City Stress Test and Action Partnership: What happens when the system is challenged, and what practical changes follow?



13. A DIFFERENT MODEL OF KNOWLEDGE

Cities at the Frontline should also recognize the importance of diverse sources of evidence. While formal datasets are still vital, cities also contain valuable knowledge that often isn't reflected in official statistics. Taxi drivers have insight into traffic failures, community groups understand household vulnerabilities, faith leaders may notice shifts in trust, young people are familiar with digital ecosystems, informal workers know economic pressures, and health workers can detect emerging patterns early. Therefore, the approach should embrace multiple forms of knowledge; quantitative data, research, professional insights, community understanding, lived experiences, cultural context, and local intelligence. This does not undermine scientific rigor, but aims to offer a more comprehensive and accurate picture of how cities truly operate.

The biggest danger is creating an outstanding annual report that ends up being read, debated, and then shelved. Instead, Cities at the Frontline should evolve into a global learning system. ISRM's chapter network provides a unique infrastructure for this transformation. Chapters could serve as dispersed urban observatories: spotting emerging risks, gathering local stakeholders, developing case studies, testing frameworks, facilitating city dialogues, and contributing local insights to the annual report.

Universities contribute methodological rigor, while city authorities offer operational insights. Communities share lived experiences, and infrastructure operators along with businesses bring system expertise. Youth and faith networks help shed light on social infrastructure. Consequently, the annual Urban Strategic Risks Report would reflect the outcomes of a broader, ongoing process throughout the year.

The programme could ultimately develop through four connected levels, following the wider CSWP commitment to Think – Convene – Enable:

THINK — Urban strategic-risk research; Urban Complexity Profiles; annual Urban Strategic Risks Report; Adaptive Cities Framework; policy briefs and case studies.

CONVENE — Mayor dialogues; practitioner roundtables; ISRM chapter conversations; community and youth dialogues; international academic-practitioner exchanges; a Bellagio-level global convening.

TEST — Pilot cities; Urban Mycelium mapping; scenario exercises; city stress tests; adaptive-governance laboratories.

ENABLE — City action partnerships; leadership development; policy implementation support; cross-city learning; practical tools.

A global convening could provide the catalytic moment for developing the framework and coalition. A possible framing is: From Resilient Cities to Adaptive Cities - Governing Trust, Technology and Turbulence in the Urban Century.

Rather than convening solely to discuss another report, participants would work on a common problem: how do we govern cities when the assumptions upon which those cities were designed are changing faster than the institutions responsible for managing them?

Participants should deliberately cross conventional boundaries: mayors, urban practitioners, strategic-risk specialists, planetary-health researchers, public-health practitioners, technologists, infrastructure operators, insurers and investors, community organisations, faith leaders, young people and researchers.

Potential outcomes could include the ISRM Principles for Urban Strategic Risk and Adaptive Governance; agreement on the architecture of the Adaptive Cities Framework; selection of pilot cities; creation of an international Cities at the Frontline network; and development of the inaugural Urban Strategic Risks Report.

14. THE PROPOSED RESEARCH AGENDA

The discussion developed in this paper suggests a wider research agenda for CSWP and its partners. Several questions deserve systematic investigation:

- How do cities recognise that they are approaching systemic thresholds?
- Which indicators reveal declining adaptive capacity?
- How can trust and legitimacy be measured without reducing them to simplistic scores?
- How do informal networks contribute to resilience?
- How can planetary boundaries be translated meaningfully into city-level decision-making?
- How should cities value redundancy when conventional financial models reward efficiency?
- What does adaptive governance look like institutionally?
- How should strategic-risk analysis incorporate inequality?
- What capabilities allow communities to reorganise following disruption?
- How do cities learn?
- What role can AI play in identifying weak signals and cascading risk?
- How can young people participate meaningfully in decisions affecting long-term urban futures?

And ultimately: what distinguishes a city that merely survives disruption from one that becomes stronger because it has learned how to adapt?



CONCLUSION

THE CITY AS THE STRATEGIC UNIT OF THE TWENTY-FIRST CENTURY

The twentieth century was largely organised politically around the nation-state. The twenty-first century may increasingly be experienced through the city.

Climate change, migration, technological transformation, inequality, public health, infrastructure, social cohesion and economic disruption are global forces that become tangible in particular places. They arrive in neighbourhoods. They interact with local histories. They encounter institutions. They encounter communities. And they produce consequences. This makes the city one of the most important strategic-risk environments of our time.

But the argument of Cities at the Frontline is not fundamentally pessimistic. Cities concentrate vulnerability. They also concentrate ingenuity and innovation. They contain universities, businesses, governments, communities, young people, cultural institutions, technology and capital. They possess the capacity to experiment at scales where change can become visible. The challenge is to connect those capacities.

The 2026 Reimagining Urban Futures conversations began by asking about the risks facing cities today. They moved towards resilience. They ended by asking what a thriving and regenerative city might look like in 2050. The next stage should move from conversation towards a global programme of inquiry and action.

The guiding question is deliberately simple: how can cities remain legitimate, inclusive, functional, healthy and adaptive when disruption becomes continuous?

Answering it requires moving beyond conventional risk registers, beyond resilience as recovery, beyond smart cities defined by technology, beyond top-down governance, and beyond infrastructure understood only as concrete, steel and fibre.

The adaptive city recognises physical infrastructure, ecological infrastructure and social infrastructure together. It understands risk as systemic. It values trust. It invests in relationships. It listens to communities. It gives young people meaningful agency. It learns. It anticipates. It experiments. And when circumstances change, it changes too.

The proposed Urban Strategic Risks Report can help identify what is changing. The Adaptive Cities Framework can help cities understand what those changes mean for them. The Cities at the Frontline initiative can create the community through which that knowledge becomes action.

The objective is therefore not another report about the future of cities. It is to help cities better shape their futures before others shape them for them.

PROPOSED NEXT PHASE

CSWP should proceed with a development phase built around five interconnected products:

1. Urban Strategic Risks Report 2027: An annual global assessment of the systemic forces reshaping cities, concentrating particularly on interactions and cascading urban risks rather than producing another generic global risk ranking.

2. Adaptive Cities Framework: A practical conceptual and diagnostic framework examining systems intelligence, anticipation, governance, infrastructure elasticity, ecological capacity, social capacity, inclusion and learning.

3. Urban Complexity Profiles: Deep city profiles combining quantitative indicators with political economy, informality, mobility, trust, planetary health and qualitative local intelligence.

4. Roots of Resilience / Urban Mycelium Mapping: A methodology for identifying the formal and informal relationships through which urban communities share information, mobilise resources and respond to disruption.

5. Cities at the Frontline Global Network: A practitioner-research-community network connecting ISRM chapters, cities, universities and partner institutions, supported by city stress tests, policy laboratories and an eventual global convening.

Together these would transform Cities at the Frontline from a publication project into a long-term urban strategic-risk platform.

DISCUSSION QUESTIONS

This paper is intended to provoke discussion rather than present a finished model. CSWP therefore proposes six questions around which the next stage of the Cities at the Frontline programme might be organised:

1. Is resilience enough?

Does the language of resilience adequately describe what cities need under conditions of continuous disruption, or is adaptive capacity becoming the more important strategic concept?

2. What makes a risk strategic at city level?

How should urban strategic risk be distinguished from conventional disaster, climate, infrastructure and operational risk?

3. What should we measure?

Can urban adaptive capacity be assessed without reducing complex cities to simplistic rankings?

4. What are we currently failing to see?

Which informal systems, relationships, dependencies and emerging risks remain invisible to conventional urban analysis?

5. Who gets to define resilience?

How can communities, particularly vulnerable groups and young people, become co-creators of urban resilience rather than subjects of it?

6. What would meaningful action look like?

How can an Urban Strategic Risks Report and Adaptive Cities Framework generate measurable change rather than becoming additional publications within an already crowded urban-policy landscape?

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