

BUILDING CONFIDENCE IN THE FUTURE

Towards a framework for measuring

best ways, and to evaluate the design of the system and the targeted interventions

Measuring resilience is, however, fraught with difficulty. Efforts must

be made to ensure that the measurement of resilience is not just a technical exercise, but one that is also a political and social one. This is because resilience is not just a technical concept, but one that is also a political and social one. This is because resilience is not just a technical concept, but one that is also a political and social one.

The need for strengthening national-level resilience is acute, as is well recognised in the recent Integrated Review Refresh and U

Against this backdrop, it is not surprising that the Government has set out its strategy for resilience in the

- Indicative: Standards and benchmarks are valuable where clear availability, compliance, and performance targets or thresholds can be set and monitored. Surveys are well suited for getting a pulse check on state-of-mind topics such as risk and resilience perceptions and priorities that can shift quickly. Exercises, whether tabletop simulations or full-scale live rehearsals, test the effectiveness of plans, procedures, capabilities, competencies, and collaborations.
- Investigative: Performance reviews retrospectively analyse how

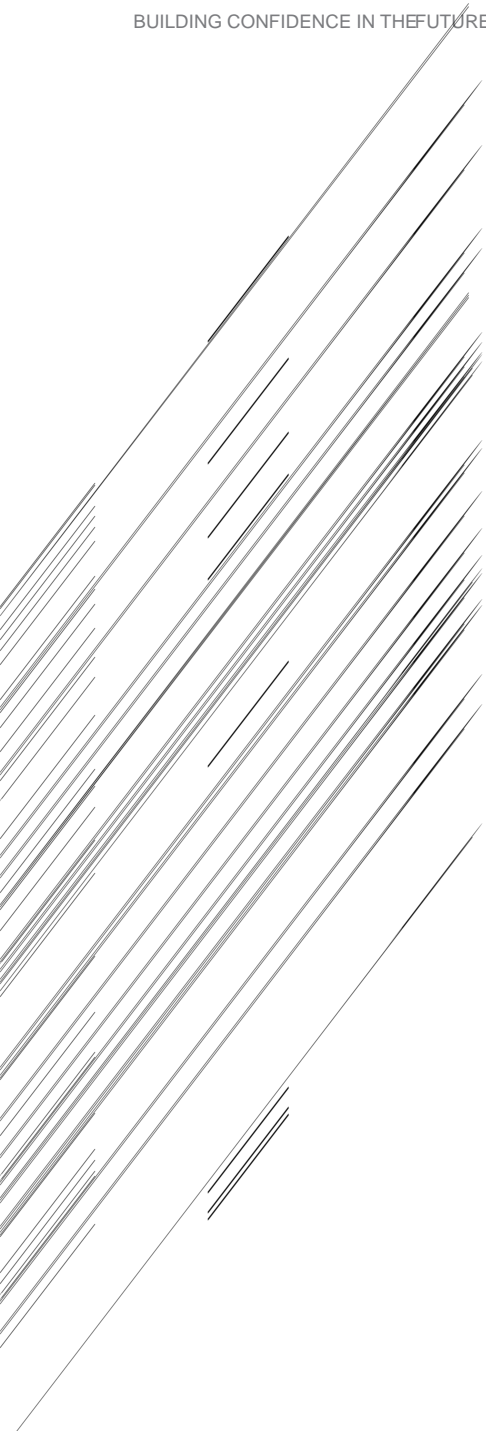
Cyberattacks, extreme weather events, supply chain fractures, labour shortages, misinformation and disinformation campaigns, and declining water availability test households, organisations, and the public sector in different ways.

Second, resilience takes different forms, and the utility of those forms



2.1 Detecting the presence of core resilience characteristics

Some studies identify characteristics (robust, agile, inclusive) that are indicative of, or contribute to, resilience. At the level of the individual organisation, these may be attributes such as:



2.3 Analysing responsive capabilities for addressing risks

One aspect of national-level resilience assumes that systems critical to the functioning of society and the economy — such as healthcare, education, energy, food, communications, and banking — can perform as required in the face of different stresses and shocks. To this end, it is important to understand what individual operators and those with broader systemic responsibilities can deploy to mitigate the impact of different types of impacts.

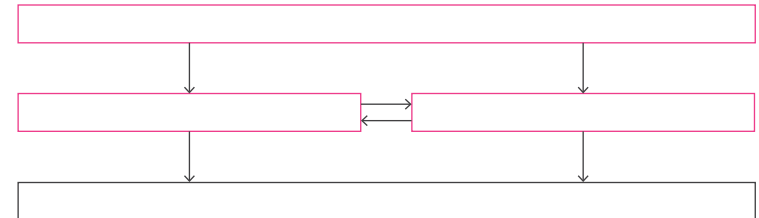


GAINING PERSPECTIVE

2. FOUR LENSES

The UK should consider an approach to measuring the nation's resilience that connects the challenges highlighted above and the concepts outlined in the previous chapter ("Gauging the Challenge"). This can be done by adopting four lenses (see Exhibit 3):

Exhibit 3: Four lenses for measuring national resilience



The first lens enables a view on the mandate for government action and the associated oversight that supports decision-making and implementation. The next two lenses provide separate perspectives on the “whole-of-society” resources that might be drawn on for preparedness and in crises, and the ease with which those resources can be roused to action. A final lens looks at the overall results of the effort in the context of evolving circumstances.

Each lens is unpacked below. Its value is noted, its component parts

- Budgeting and resource allocation balances the resilience needs of the present and opportunities for near-term growth with due attention



2.2 Assets and Capabilities

The bedrock of resilience is the reliability of the arrangements that underpin daily national life and the resources can be brought to bear on critical challenges to deliver pre-emptive preparedness, in-crisis responses, and (post-)crisis recovery programmes. Without the right “things”, enough of them, the right quality, and in the right places, risk exposures are magnified and vulnerabilities expand. To avoid definitional complications,

Exhibit 5: Key issues to explore — Assets capabilities



- Achievement of appropriate annual maintenance targets by (critical) infrastructure
-



2.3 Coordination and Mobilisation

Powers, assets, and capabilities are not enough by themselves to galvanise and continually enhance resilience. To achieve lasting preparedness and agility, networks must be deepened and renewed, processes sharpened and tested, levers refreshed and expanded, platforms developed and leveraged, responsibilities clarified, and ~~turned~~ ~~turned~~.

The core components of this ~~area~~ ~~area~~

- Collaboration within government ~~joint~~ ~~joint~~ working across departments and agencies, communication with devolved administrations, the armed forces and local authorities, and interactions with ~~foreign~~ ~~foreign~~ governments
- Harnessing of private sector strengths ~~to~~ ~~to~~ both the self-organising preparedness and agility of businesses for their own resilience and, additionally, strategic partnering between public and ~~private~~ ~~private~~
- Leveraging of the science and technology research ~~to~~ ~~to~~ base directly in support of resilience planning and indirectly to generate the sustainable innovations on which future prospects ~~depend~~ ~~depend~~
- Encouragement and support for communities and the voluntary sector — both formally and informally to build a culture of locally driven risk anticipation and ~~crisis~~ ~~crisis~~ response

Exhibit 6: Key issues to explore — Coordination and mobilization



¶(E()Tj -[MC 1)-4 (ree)-784 s-623.6 (o)-3.4 | 0-4.9 (l)44 (s t)18 (d)]T.4 ce(c (c 0.01 Tw 8 0 0 80)-393147DT] ET BT /Span <</ActualText (pÿ)>>BDC 8

Exhibit 7: Key issues to explore — Goals and outcomes



COMMUNITIES

- Literacy of households and businesses on matters such as cyber security, extreme weather anticipation, and health risk mitigation
- Levels of poverty across the country linked to employment levels, cost-of-living crises, and welfare support
- Physical and financial ability of households and businesses to cope with supply outages and price rises related to basic services
- Availability of economic opportunities for different demographic, geographic, and ability groups in the context of industrial and economic change
- Economic and health impacts (including excess mortality) of extreme weather events, pandemics, and other crises on different demographic, geographic, and ability groups
- Business insolvency rates and the amount of state subsidy applied to nationally-important companies and industries in trouble
- Level of trust in government and corporate messaging driving societal responses to acute and long-term crises



- Resilience of critical infrastructure and systems to distinct extreme events such as extreme weather/climate events, cyber attacks, and other crises
- Strength of the national fiscal position affecting the potential application of funds to address and respond to crises
- Appropriateness of dependency levels on foreign partners — and the reliability of those partners' supplies of critical goods and services
- Extent of supply outages of critical goods and services, infrastructure system failures, major industrial accidents, and the closure of important manufacturing

3. LENSES IN ACTION

RISK
CHALLENGE OVERVIEW

KEY RISK
DRIVERS

POWER AND
GOVERNANCE

ASSETS AND
CAPABILITIES

COORDINATION

GENERATING INSIGHT

Different evaluation methods support a lens-based approach to resilience measurement. Deployed in creative combinations, they can examine arrangements for dealing with current challenges, stress situations, and expected future needs.

1. EVALUATION METHODS

The lenses help specify what should be explored in order

2. INTRINSIC

2.1 Dependency mapping

Value: Mapping the linkages and connections between different assets, flows, and systems helps uncover vulnerabilities and potential critical linkages between critical infrastructure assets and systems. It's important to identify points of failure, enabling a more systemwide view of resilience needs and to account for cyber-based interconnections, where industrial control systems and other vital operations can be infiltrated, manipulated, and disrupted by malicious actors or technology failures. Other key dependencies include the reliability of assets and capabilities both now and in the future. Supply chain commonalities (including providers abroad) and the people-work can inform the prioritisation of investment, guide the establishment of protections and backups, and provide a systematic basis for building complementary competencies.

Considerations: Dependency mapping should look beyond the physical linkages between critical infrastructure assets and systems. It's important to account for cyber-based interconnections, where industrial control systems and other vital operations can be infiltrated, manipulated, and disrupted by malicious actors or technology failures. Other key dependencies include supply chain commonalities (including providers abroad) and the people-work can inform the prioritisation of investment, guide the establishment of protections and backups, and provide a systematic basis for building complementary competencies. Indeed, it's important to appreciate cross-organisational and cross-sectoral dependencies change between times of calm and during emergencies.

The process of identifying dependencies within and across networks also helps improve coordination and mobilisation — for both asset-based and people-based solutions. Outputs provide tangible examples and cases for cross-departmental and cross-sector engagement, enabling more intentional and effective communication and discussion and risk-sharing arrangements.

Adopting a broader view, events such as natural disasters or war can disrupt supplies from affected regions, on which key infrastructure industries might rely. In a different way, localities that are dominated by a single business depend on the strategic and financial health of that company for employment and the viability of ancillary enterprises, and the collapse of that business will have cascading impacts on the community and the local economy.

3. INDICATIVE



3.3 Exercises

Value: Whether discussion-based walkthroughs, tabletop simulations, or full-scale live rehearsals, exercises help validate plans, develop competencies through practice, and test procedures. With an operations focus, they can examine the strength of business continuity provisions; more strategically, they can explore the likely effectiveness of workaround and backup resources for supply-based interruptions. They can also examine how speedily capabilities might be brought together and ramped up in a

Exercises can also examine the process, quality, and speed of decision-making and execution at all levels. When involving participants from different organisations, they can test quality of intelligence sharing, communication, and interactions, and the speed of mobilisation. Exercises can validate other training and education

Considerations:

EVALUATION AND THE LENSES

The seven evaluation methods provide varying support for each of the lenses. An illustration of their differentiated value is shown in Exhibit

Exhibit 9: How the evaluation methods support the lenses

	Light Pink	Dark Magenta	Dark Magenta	Light Pink
	Dark Magenta	Dark Magenta	Light Pink	Light Pink
	Light Pink	Dark Magenta	Light Pink	Light Pink
	Light Pink	Light Pink	Light Pink	Light Pink
	Light Pink	Light Pink	Dark Magenta	Light Pink
	Dark Magenta	Light Pink	Light Pink	Dark Magenta
	Light Pink	Dark Magenta	Light Pink	Dark Magenta



4.2 Cost-benefit analyses

Value: Cost-benefit analyses are the foundation of strategic expenditure prioritisation exercises, the formulation of specific funding bids, and the evaluation of policy or project designs.

Ex ante, they enable some comparison of intervention options (or no action) both within the context of a single imperative and across different policy agendas. Ex post, they support value-for-money exercises by examining the efficiency of resource deployment and the effectiveness of the

Considerations: (c)3 (i)2.89enTw 7.73.9 3.9 (a)0.8-g 23-(c)10.63.4

CONCLUSION

5. Recognise that resilience takes many different forms and that

Endnotes

- 1 UK Government (2022, December 19). [The UK Government Resilience Framework](#) Retrieved April 12 2023.
- 2 UK Government (2023, March 13). [Integrated Review Refresh 2023: Responding to a more contested and volatile world](#) Retrieved April 12 2023.
- 3 FM Global. (2022). [2022 FM global resilience index](#)

ACKNOWLEDGEMENTS

Marsh McLennan contributors

James Crask, Robyn Daly, Julian Enoizi, Paul Habgood, Daniel Kaniewski, Sebastian Lawrence, Nicholas Martin, Gary Okely, Lisa Quest, Riccardo Soddu, ~~Senja~~ Senjanski

Marsh McLennan