

An aerial, top-down view of a large, circular stadium or arena. The seating tiers are arranged in concentric circles, creating a strong sense of depth and perspective. The center of the stadium is a bright, solid blue circle, which contrasts sharply with the dark, shadowed seating areas. The overall lighting is dramatic, with deep shadows and highlights that emphasize the architectural details of the stadium's structure.

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An Infinite Loop

How transformation and digitalization create
new fragilities in critical infrastructures

Jan Hoff
Paul Weissmann

An Infinite Loop

How transformation and digitalization create new fragilities in critical infrastructures

Jan Hoff and Paul Weissmann, Panel *Safe Transformation*



Jan Hoff

Cyber Security Expert

- Hacks IT & OT to protect critical infrastructures
- History in Utilities, ex-KPMG
- BS/MS Computer Science



Paul Weissmann

Founder & CEO

- Insignals cyber consultancy
- OpenKRITIS platform for CIs
- ex-KPMG/DT/Stanford Univ.
- Engineering, PolSci, MBA



Status quo in the Energy sector

A look at three eras of transformations since the 1990s with new technologies and new challenges.



Infinite loop: Change and progress

Four drivers for change - disruptions to systems are countered and steered from fragility back to resilience.



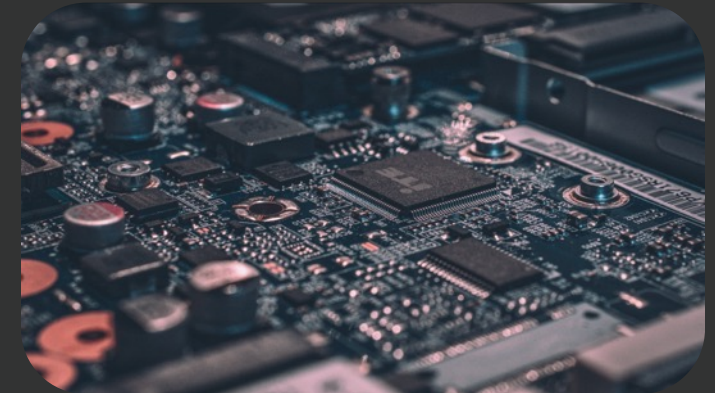
Impact of transformation

Applying the model and mitigating effects of change for a more resilient infrastructure.

Transformations of Infrastructure Systems, 4th November 2021 International Conference of the Research Training Group KRITIS

Three eras of change in the Energy sector

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Era

1990s: Computerization

2000s: Networking

2010s: Internet of Things

Drivers

Business optimization
Automation

Deregulation - data exchange
Connected systems/entities (OT/IT)

Data driven business models
Predictive maintenance

Effects

New operational vulnerabilities
are added to systems

Vulnerabilities due to networking
New access for attackers

Ubiquitous data and connectivity
Regulatory frameworks

Why progress leads to fragilities

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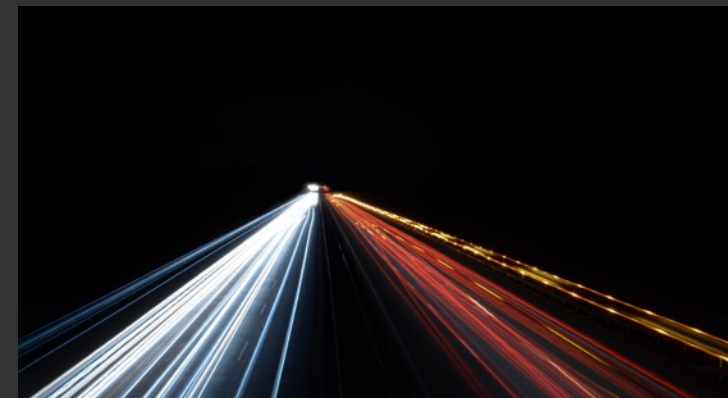
Government & Regulation



(New) Technologies



Business & Society



Convergence

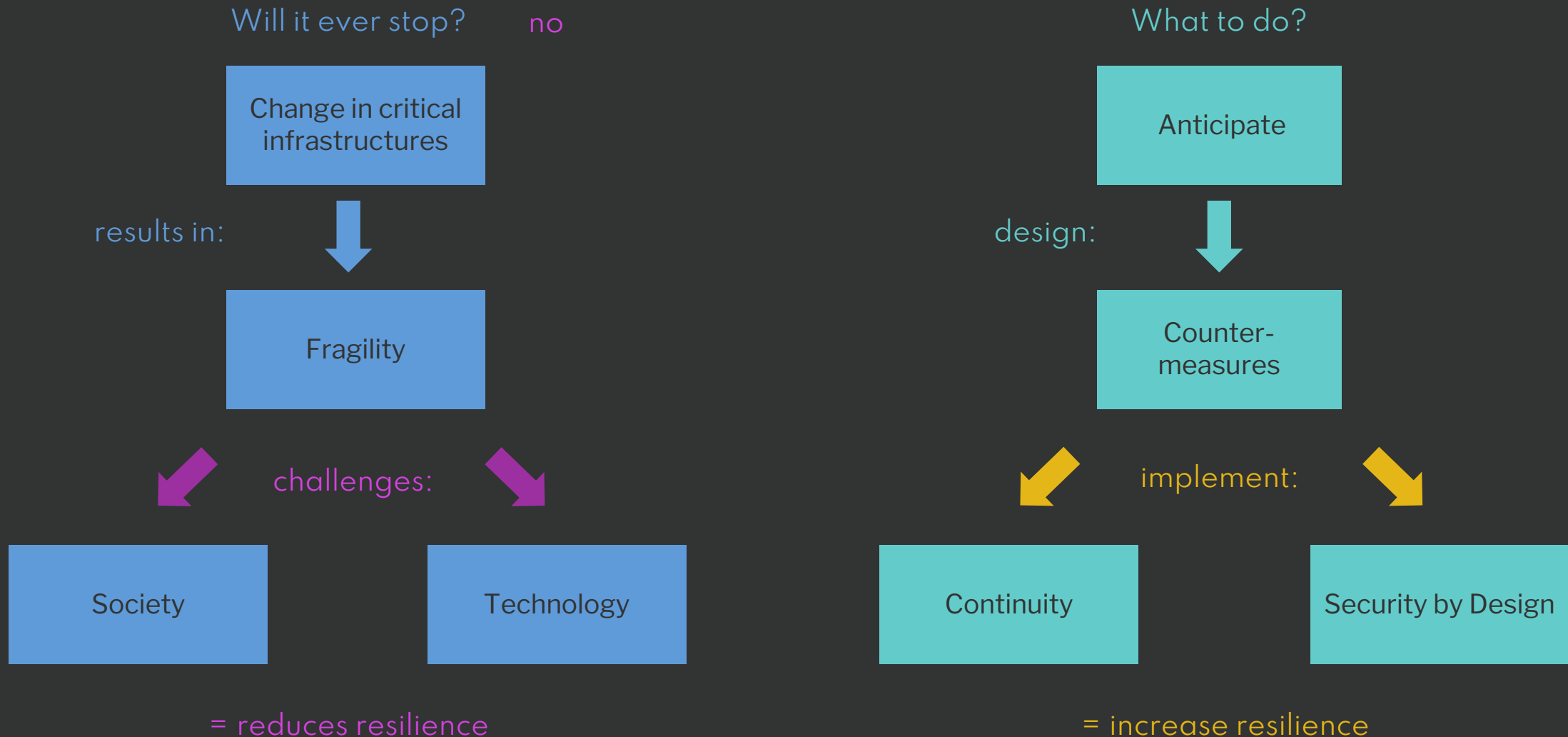
The loop of resilience and fragility

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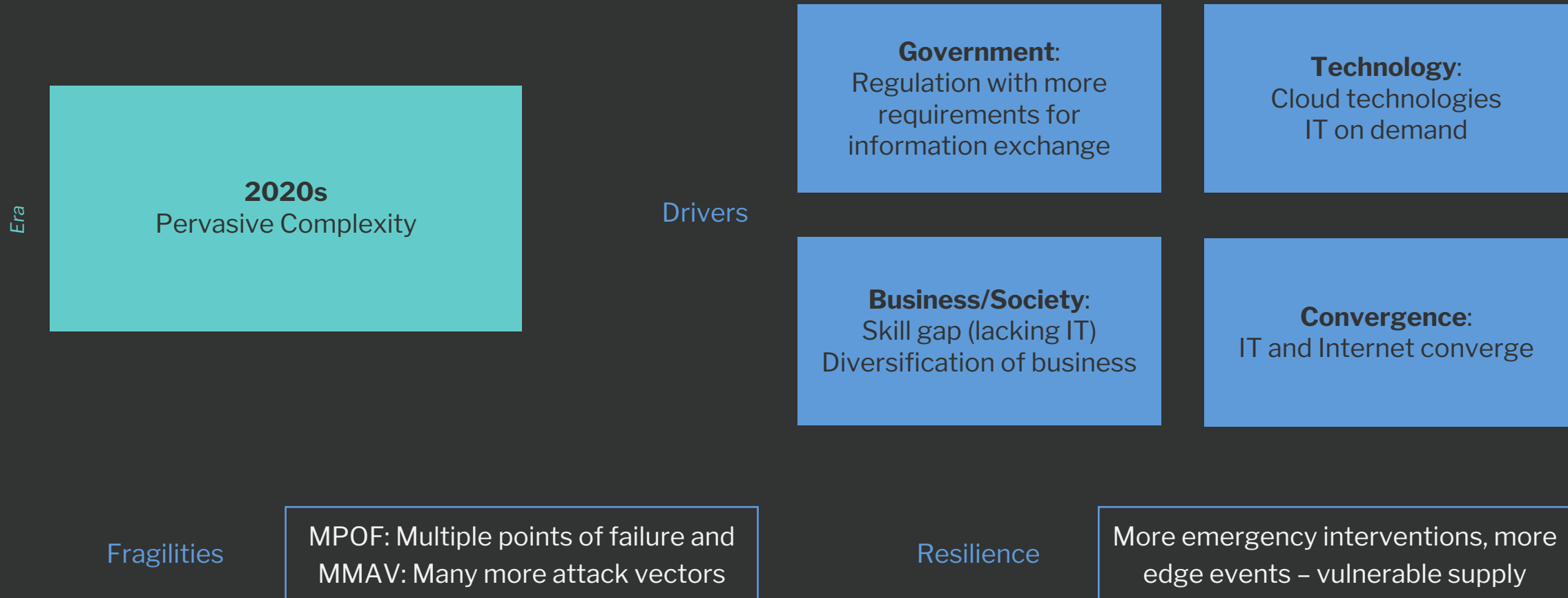
Anticipate changes to break the cycle

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An anticipation of the 2020s

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