SECURITY AND SUSTAINABILITY FORUM
Secure the judgment to act in a world under pressure

Stability and Resilience:
Managing the Interdependence

Thursday, November 5, 2026
1:15–2:15 p.m. EDT

www.ssfworld.org

arise
PRIVATE SECTOR ALLIANCE FOR DISASTER RESILIENT SOCIETIES



Joseph Fiksel
Former Vice President, Battelle
Prof. Emeritus,
The Ohio State University



Peter Williams
Co-Chair, ARISE-US
IBM Distinguished Engineer (retired)



Edward Saltzberg
Executive Director
Security and Sustainability Forum

Submit questions in the Questions panel.
Slides and SSF course information are in the Handouts Window.
Complete the exit survey.

SSF Resilient Energy Certificate Program

Joseph's Resilience Course Syllabus

Run of Show

01	Welcome and new SSF Professional Education Certificate	ED
02	Brief overview of sustainability and resilience	JOSEPH
03	Meeting the resilience challenge	PETER
04	A systems approach	JOSEPH
05	Joseph's course: Energy Systems and Enterprise Resilience	ED
06	Q&A and discussion	ED
07	Panel closing comments	ALL

SSF Resilient Energy Certificate Program

Build the expertise to shape your organization's energy decision

SECURITY AND SUSTAINABILITY FORUM
Secure the judgment to act in a world under pressure

Seven practitioner-led courses **6 to 8 hours each. $495 per course.**

On-demand formats. Non-credit, skills-building certificates.

1. **Electricity markets**
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5. **Building decarbonization**
6. **Energy as corporate strategy**
7. **Fleet electrification and the grid**

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All 7 courses
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Enrollment includes ongoing enrichment webinars and access to the series archive.

ssfworld.org/ssf-resilient-energy-certificate/ esaltzberg@ssfworld.org

The Practitioners Behind the Program

Experience directing energy programs, developing projects, and advising investment decisions

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Matt Haupt
Electricity markets

Former NAVFAC Headquarters Energy Director. Coordinated Navy energy policy and strategy to support assured power at 70 installations.

Scott Sklar
Distributed energy and community resilience

Led the Solar Energy Industries Association for 15 years. Advises distributed-energy projects worldwide and teaches critical infrastructure at GW.

Joseph Fiksel
Enterprise resilience

Co-founded Ohio State's Center for Resilience. Author of Resilient by Design and former Battelle vice president serving corporate and public clients.

Smita Chandra Thomas
Building decarbonization

Building-energy consulting and modeling for the New York Times and Bank of America headquarters, plus utility and federal efficiency programs.

Jimmy Jia
Energy as corporate strategy

Author of The Corporate Energy Strategist's Handbook. Chairs the Center for Sustainable Energy and researches energy investment at Oxford.

Julian Bentley
Fleet electrification and the grid

More than 20 years advising federal energy programs. Has taught DOE courses on federal fleet infrastructure and electric vehicles.

Stratos Tavoulareas
Renewable energy finance and grid integration

Former Global Power Lead, IFC Advisory Services, World Bank Group. Four decades in energy across 80 countries.

SSF Resilient Energy Certificate Program

Full biographies: ssfworld.org/faculty-bio

Sustainability and Resilience: Managing the Interdependence

November 5, 2026



Peter Williams

Co-Chair, ARISE-US

IBM Distinguished Engineer (retired)

arise

PRIVATE SECTOR ALLIANCE FOR DISASTER RESILIENT SOCIETIES



Joseph Fiksel

Former Vice President, Battelle

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Edward Saltzberg

Host & Moderator

Security & Sustainability Forum

SECURITY AND SUSTAINABILITY FORUM

Secure the judgment to act in a world under pressure

Our Relationship to the Planet







IDEAL: Stewardship & Harmony

REALITY: Turbulence & Uncertainty

Definitions—An Expanding Vocabulary





Sustainability Purpose:
fulfilling basic human needs and ensuring continued quality of life

Resilience Purpose:
preparing for risks of sudden shocks that may threaten human well-being

Resilience is Intertwined with Sustainability

The UN **Sustainable Development Goals** aim at shifting to a more sustainable and resilient path by improving and restoring conditions for society, economy and the environment.



In the **Paris Agreement** on climate action goals, increasing resilience is emphasized in terms of communities, livelihoods,, socio-economic, and ecological **systems**.

The **Sendai Framework** recognizes climate and human-caused risks to society, economies and the environment and seeks to build the resilience required to prevent disasters, prepare, absorb, adapt, recover, restore and rebuild.

UNITED NATIONS

Source: OECD, updated by Debbra A.K. Johnson, Image: Hester Whyte. 2025

Sustainability and Resilience are Mostly Synergistic

Sustainability
Waste & emission reduction
Environmental protection
Community well-being

- Natural hazard reduction
- Resource recovery & reuse
- Energy & water security
- Climate stabilization ??

Resilience
Disaster risk reduction
Adaptation to change
Economic viability

- Population safety
- Resource protection
- Waste prevention
- Crisis avoidance



Today's Agenda

- **Meeting the Resilience Challenge** – Peter Williams
  - ARISE and UN Disaster Risk Reduction (DRR)
  - The "Ten Essentials" of disaster resilience
  - Global experience in resilience assessment
  - Collaboration among private & public sectors



- **Taking a Systems Approach** – Joseph Fiksel
  - How resilience contributes to shareholder value
  - Beyond business continuity— "inherent resilience"
  - Synergies and conflicts between sustainability & resilience
  - Examples of companies that have found "sweet spots"



About arise

PRIVATE SECTOR ALLIANCE FOR DISASTER RESILIENT SOCIETIES

- Established by **United Nations** Office of **Disaster Risk Reduction** (**DRR**) to build **Public-Private Collaboration** on resilience to disasters.
- Organized as **country networks** – approximately 35 globally. Strongest presence in the Americas and Asia.
- Work ranges from advocacy and policy, to community-based projects, to creating tools – such as the **Coastal Resilience Scorecard**.
- The **ARISE-US** network is a mix of large corporations, mid-sized firms and sole proprietors. Co-chaired by **Peter Williams**.
- Strong university and NGO partnership programs.

https://www.ariseglobalnetwork.org

https://www.arise-us.org/

Ten Essentials for Making Cities Resilient

Basis of DRR City Scorecards

Source: UN Sendai Framework



1. Organise for disaster resilience
2. Identify, understand and use current and future risk scenarios
3. Strengthen financial capacity for resilience
4. Pursue resilient urban development and design
5. Safeguard natural buffers to enhance the protective functions offered by natural ecosystems
6. Strengthen institutional capacity for resilience
7. Understand and strengthen societal capacity for resilience
8. Increase infrastructure resilience
9. Ensure effective preparedness and disaster response
10. Expedite recovery and build back better.

UN Disaster Resilience City Scorecard Applications

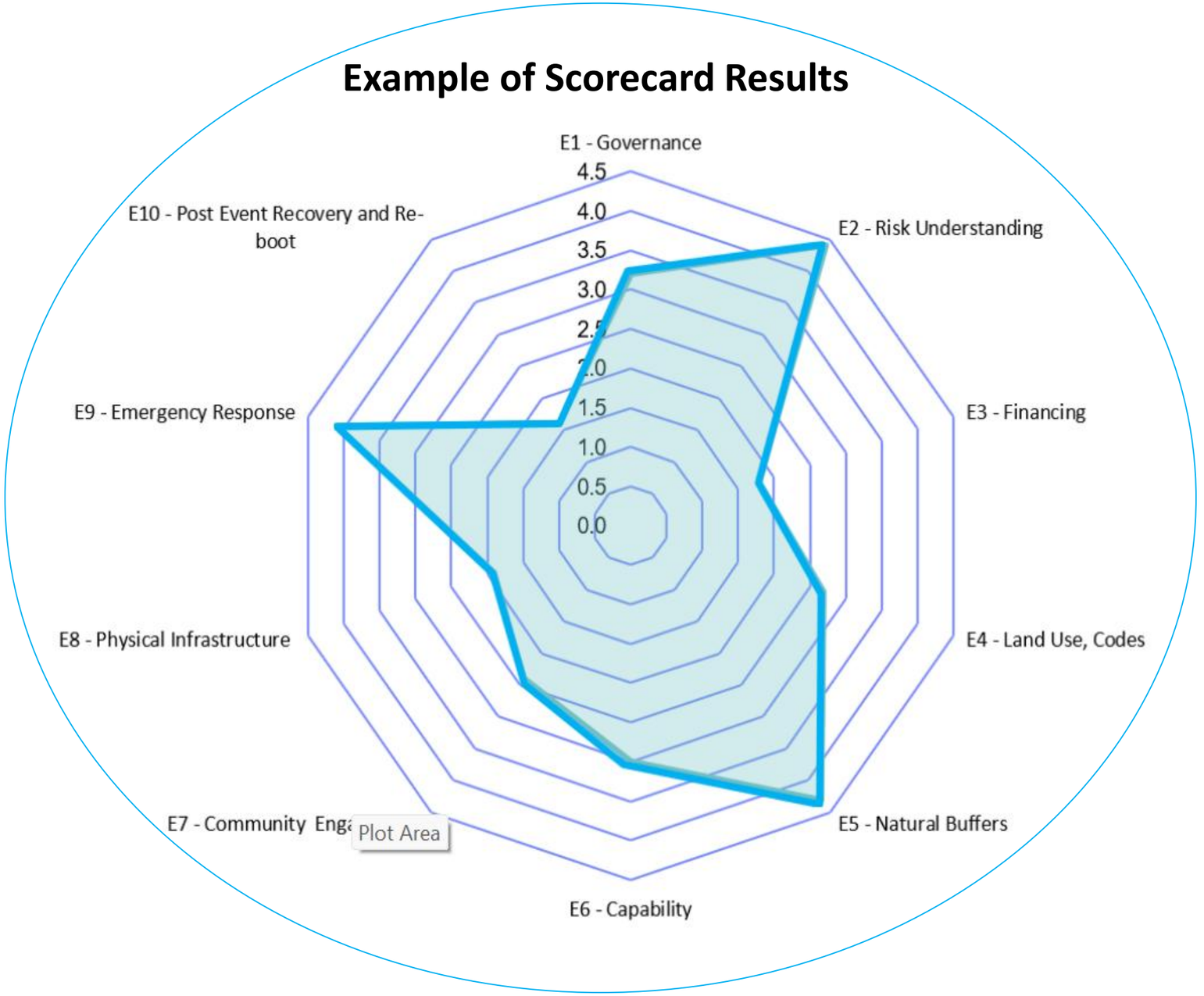


Learnings from City Scorecard Use in the Past 10 Years

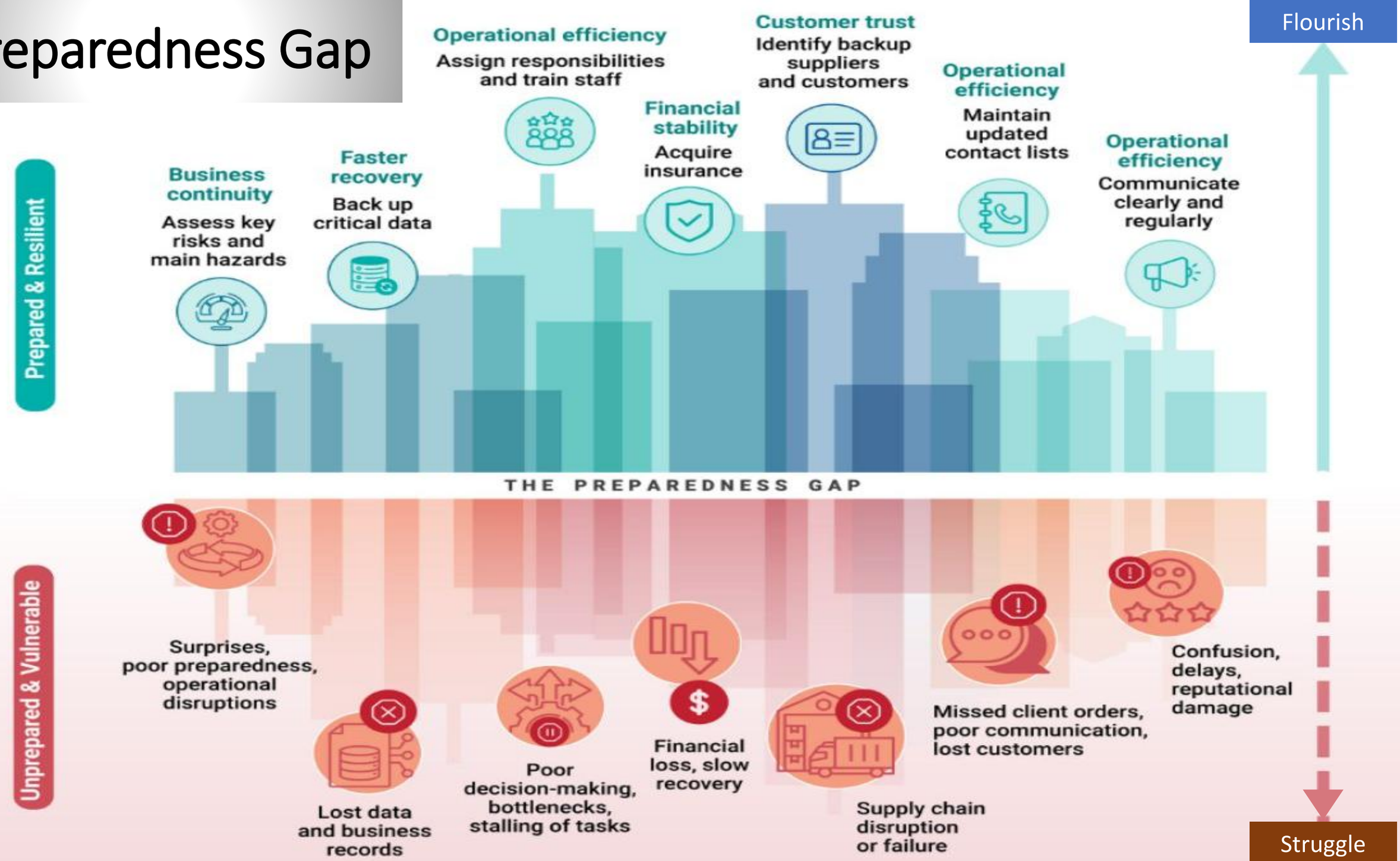
"Tactically strong, strategically weak"

Cities tend to be weak in:

- **E1** – Governance
- **E3** – Financing
- **E7** – Community Engagement
- **E10** – Post-Event Recovery



Preparedness Gap



Chronic Stresses and Acute Events

Chronic Stresses

- Climatic and Environmental
- Financial and Economic
- Social, Political and Cultural
- Emotional and Psychological
- Industrial and Technological
- (etc)

May cause disasters
May worsen impacts
May hinder recovery

Interactions

May create new stresses
May exacerbate problems
May delay long-term solutions

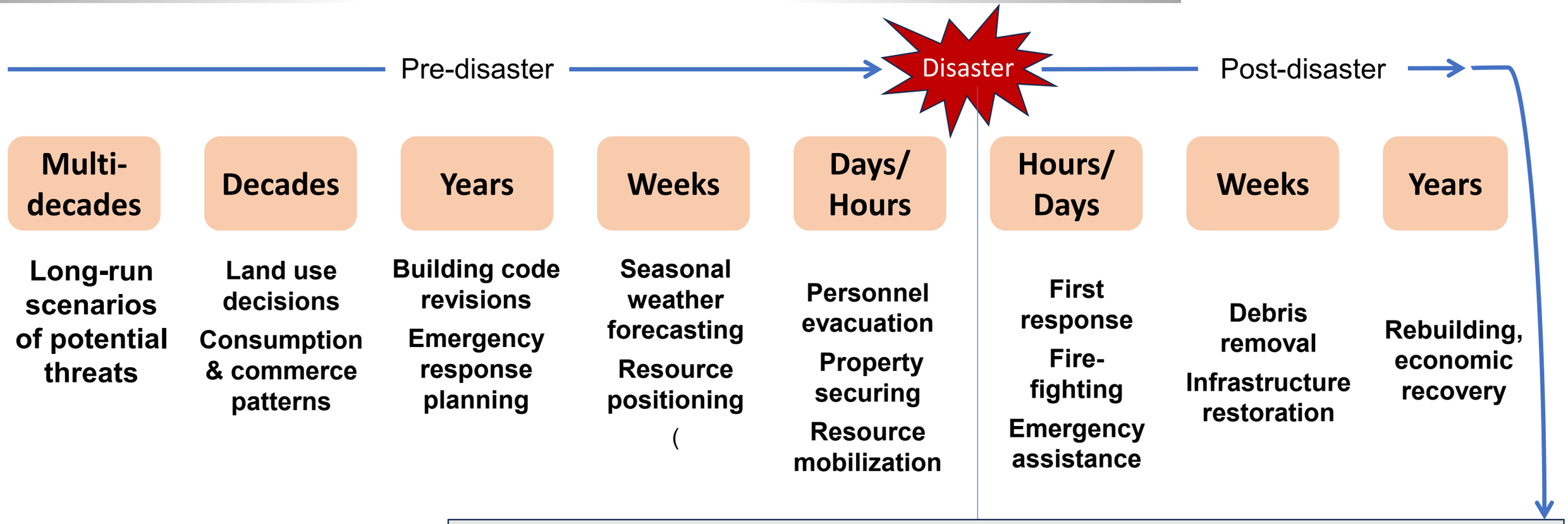
Acute Events



Wildfires, Accidents,
Strikes, Conflicts,
Natural Disasters

Ref: J. Fiksel, ***Resilient by Design****: Creating Businesses That Adapt and Flourish in a Changing World*, Island Press, Washington, DC, 2015.
J. Fiksel, M. Polyviou, T. Pettit, K. Croxton, "**From Risk to Resilience**: Learning to Deal With Disruption," *Sloan Management Review*, 2015.

DRR Involves Multiple Time Scales



Improvements Based on Learning from Disaster Experience

Prepare for potential future exposures (municipal boundaries, climate impacts)	**Community adaptation, infrastructure** (re-zoning, transport options)	**Structural hardening & preparation** (backup energy & supplies, drills, awareness)	**Pre-event warnings & maintenance** (supplies; understory clearance)	**Enhanced law & order presence** (event tracking & public alerts)	**Survivor search, care for victims** (first aid, food, shelter, power)	**Short-run economic reboot** (loss adjustments, insurance payout)	**Survivor search, care for victims** (first aid, food, shelter, power)

DRR Involves Multiple Spatial Scales

Individual Property Scale

- Design & construction
- Site safety & protection
- Emergency services





Community Scale

- Urban layouts
- Building codes
- Social connectivity



Landscape Scale

- Forest basin
- Watershed
- Air basin



Co-Dependence of Businesses and Communities

- The largest contribution any business can make to DRR is to stay in business.
- This protects the community's economic "heartbeat" – commerce, jobs, disposable incomes, tax revenues, and social vitality
- Business risk is also community risk, and vice versa. Therefore, business resilience *is* community resilience.
- Effective business continuity planning (BCP) is *also* "community continuity planning" (CCP).



BCP = CCP!

Collaboration on DRR: Reciprocal Value

Building codes, legislation, incentives; Advice on risks, response/restoration times; Negotiating bulk insurance; Generating workforce awareness







Analytic skills for preparedness; Emergency help for evacuation; Post-disaster supplies & support; Community volunteer programs

Rotterdam—Innovative Flood Management

- Existing flood barriers are becoming inadequate
- New resilience strategies:
  - Making room for the river
  - Advanced decision support
- IBM developed “Digital Delta”
  - Integrated network of air, water, and soil monitoring stations
  - Smart levees that augment satellite observation with “Geobeads”
  - Advanced urban water cycle management avoids sewer overflow
  - Integrated water distribution system accounts for local needs
  - Citizen engagement based on data-mining of social media



Fundamental Definition of Resilience (2005)



… the capacity of living systems*
to survive, adapt, and flourish
in the face of turbulent change
and inevitable uncertainty

Operational Resilience
"bounce back"



Coping with unforeseen disruptions

Strategic Resilience
"bounce forward"

Adapting to a changing environment

*Organisms, people, communities, enterprises, ecosystems

How Resilience Contributes Financial Value

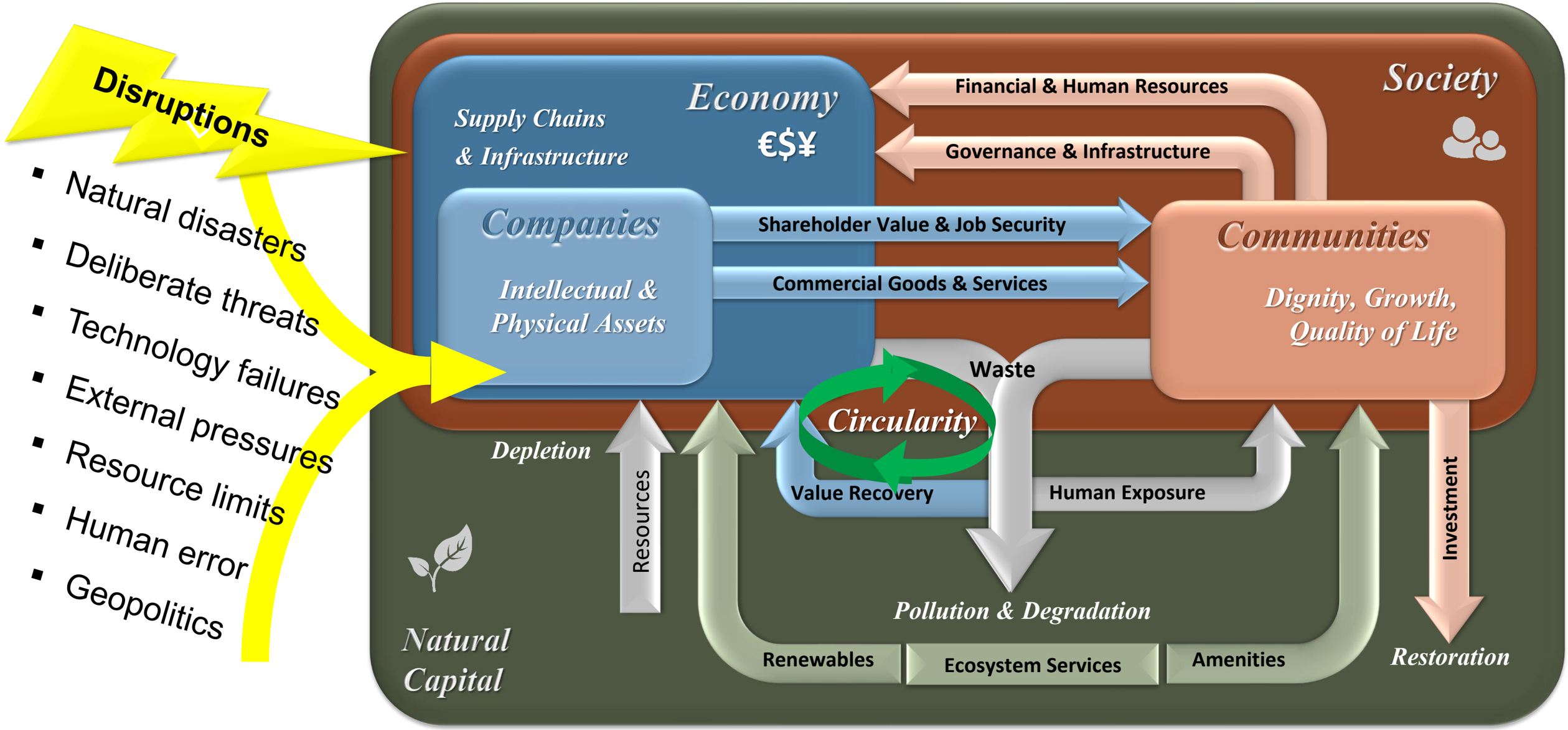
Economic Value Added (EVA) = **After-tax operating profit** − **Capital Charge**

Resilience contributions

Increase Revenues	Decrease Operating Costs	Manage Assets	Decrease WACC*
GROWTH	EFFICIENCY	UTILIZATION	LOW RISK
Differentiation Good will & loyalty New markets Innovation	Productivity & continuity Reserve capacity Access to resources Lower insurance costs	Adaptability to change Reliability & availability Business continuity without excess assets	Prevention Preparedness Sustainability Resilient culture

*WACC = Weighted Average Cost of Capital

Systems Approach: Triple Value Framework



Source: Fiksel et al, "The Triple Value Model: A Systems Approach to Sustainable Solutions."" Clean Technologies and Environmental Policy: 16:4 (2014),

Inherent System Resilience – Key Aspects

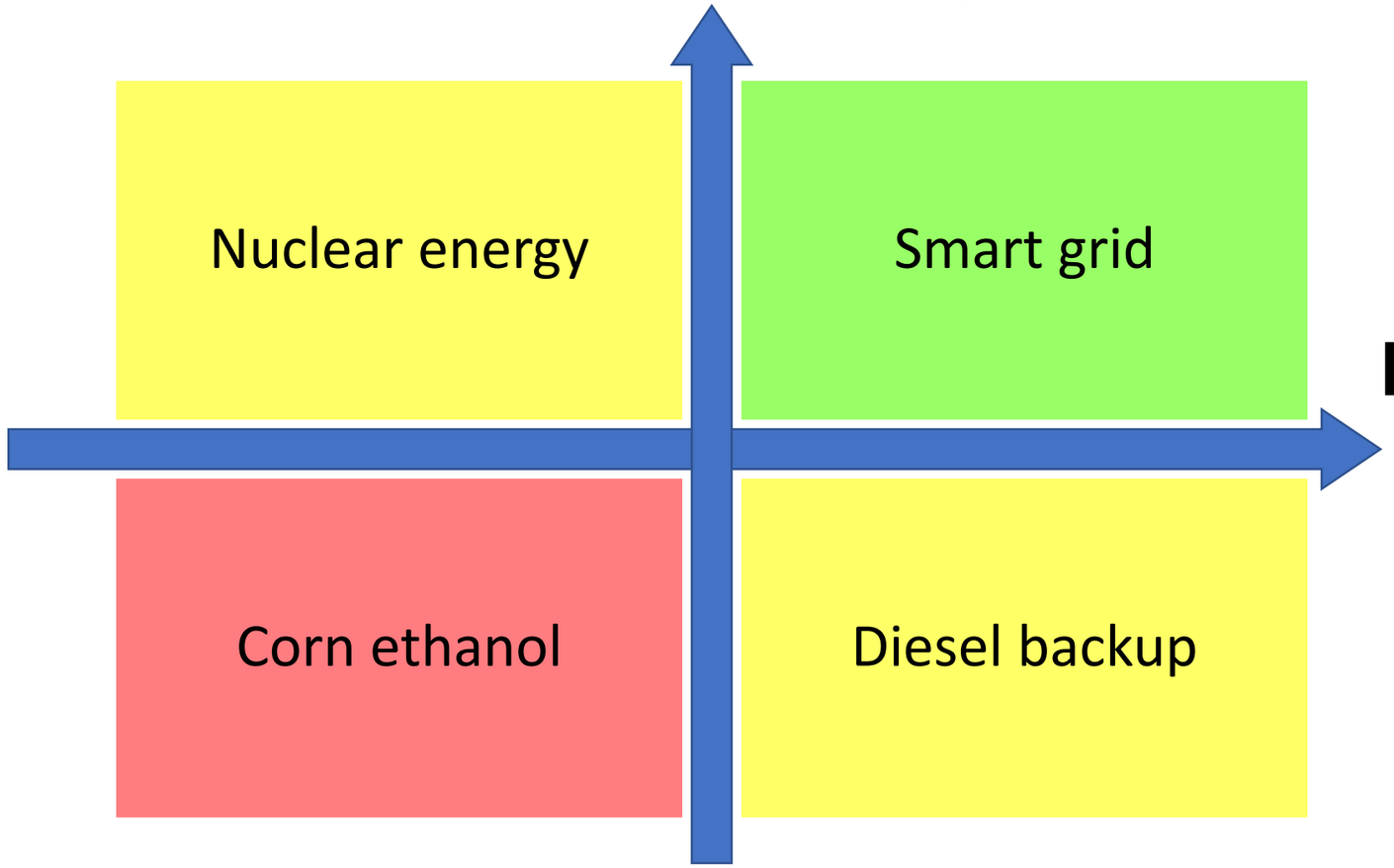
Diversity	Multiple talents, capabilities, pathways, and resource providers that enable system continuity
Efficiency	Balance of resource optimization with reserve capacity to handle unexpected system disruptions
Cohesion	Effective organizational communication and unified purpose, even during challenging times

Adaptability — The capacity to sense and respond to stress or change through strategic or operational adjustments.

Synergies & Trade-offs

Energy technologies

More sustainable
(smaller ecological footprint)



Less resilient

More resilient
(higher adaptive capacity)

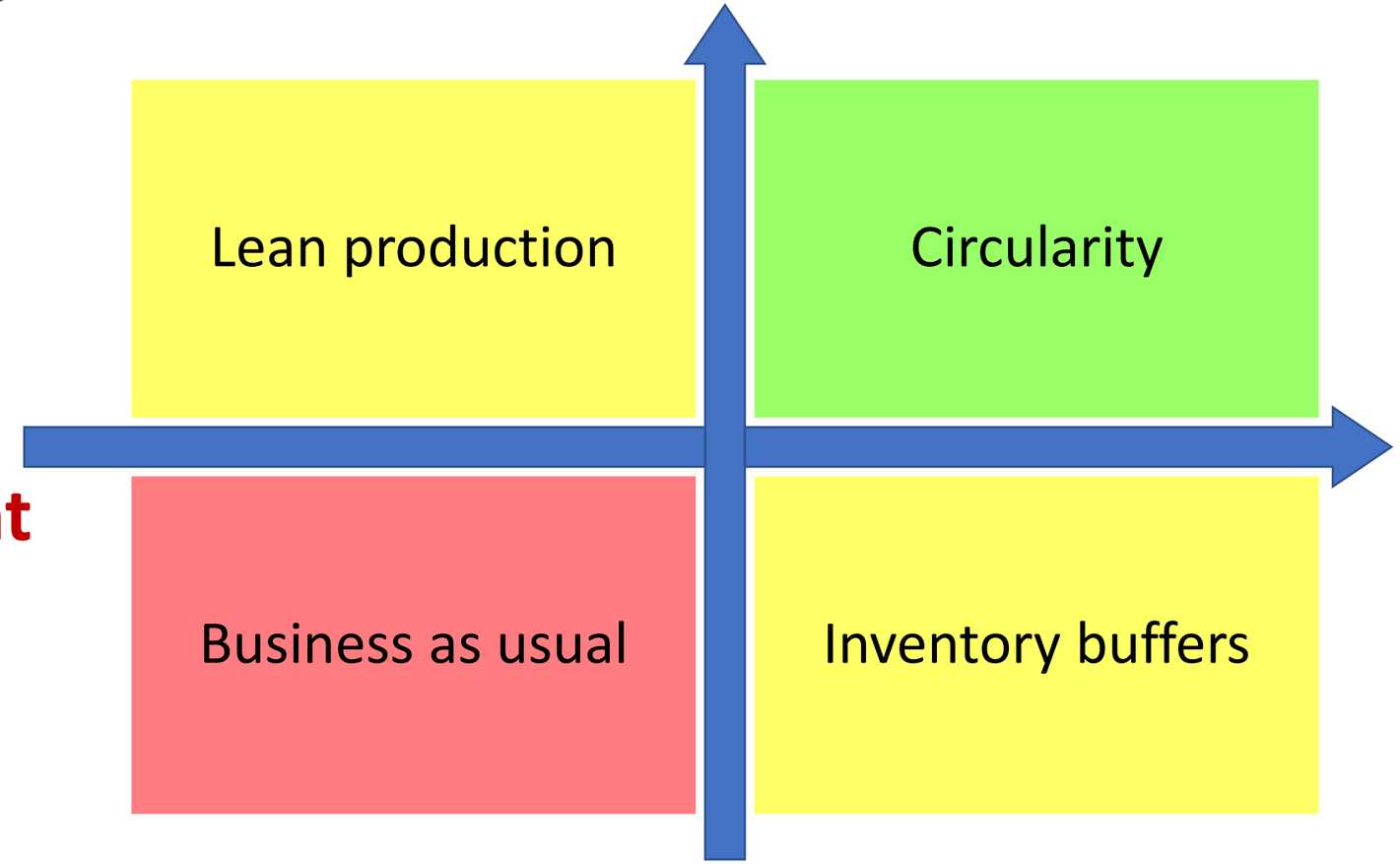
Less sustainable

Source: J. Fiksel, I. Goodman, A. Hecht,
"Navigating Toward a Sustainable Future," *Solutions*, Oct. 2014

Synergies & Trade-offs

Supply chain practices

More sustainable
(smaller ecological footprint)



Less resilient

More resilient
(higher adaptive capacity)

Less sustainable

Source: J. Fiksel, I. Goodman, A. Hecht, "Resilience: Navigating Toward a Sustainable Future," *Solutions*, Oct. 2014

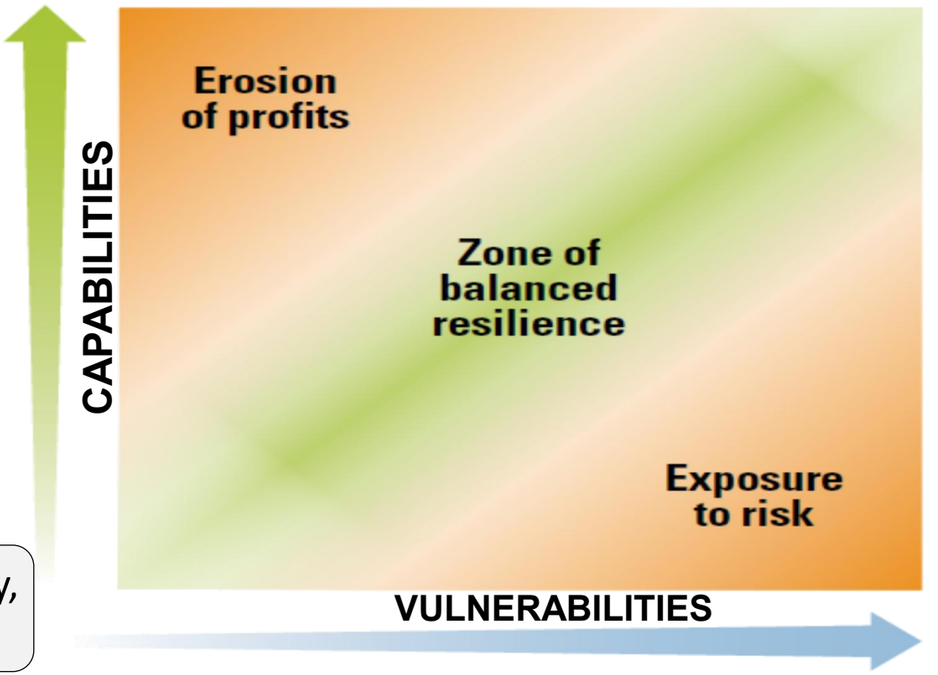
Key Factors in the SCRAM™ Framework

VULNERABILITIES

- **Turbulence** — Disasters, infrastructure failures, political disruptions, pandemics
- **Deliberate threats** — Terrorism, crime, labor disputes, boycotts, lawsuits, cyberattacks
- **External pressures** — Government regs/requirements, NGOs, citizens, unions, investors
- **Resource limits** — Supplies, energy, water, fuel, etc., workforce skills, natural resources

CAPABILITIES

- **Supply flexibility** — Alternative suppliers, contract flexibility, proximity, infrastructure adequacy
- **Asset redundancy** — Emergency backup systems for energy, communication, and supply provisioning
- **Operating efficiency**
- **Response agility** — Seize opportunities, alternate technology, experiential learning, simulation models
- **Anticipation & recovery**
- **External collaboration** — Cooperative forecasting, external networks, supplier risk sharing, community linkages
- **Stakeholder trust**
- **Organizational talent** — Problem-solving culture, accountability, diversity of skills & experience, leadership
- **Security & stability**

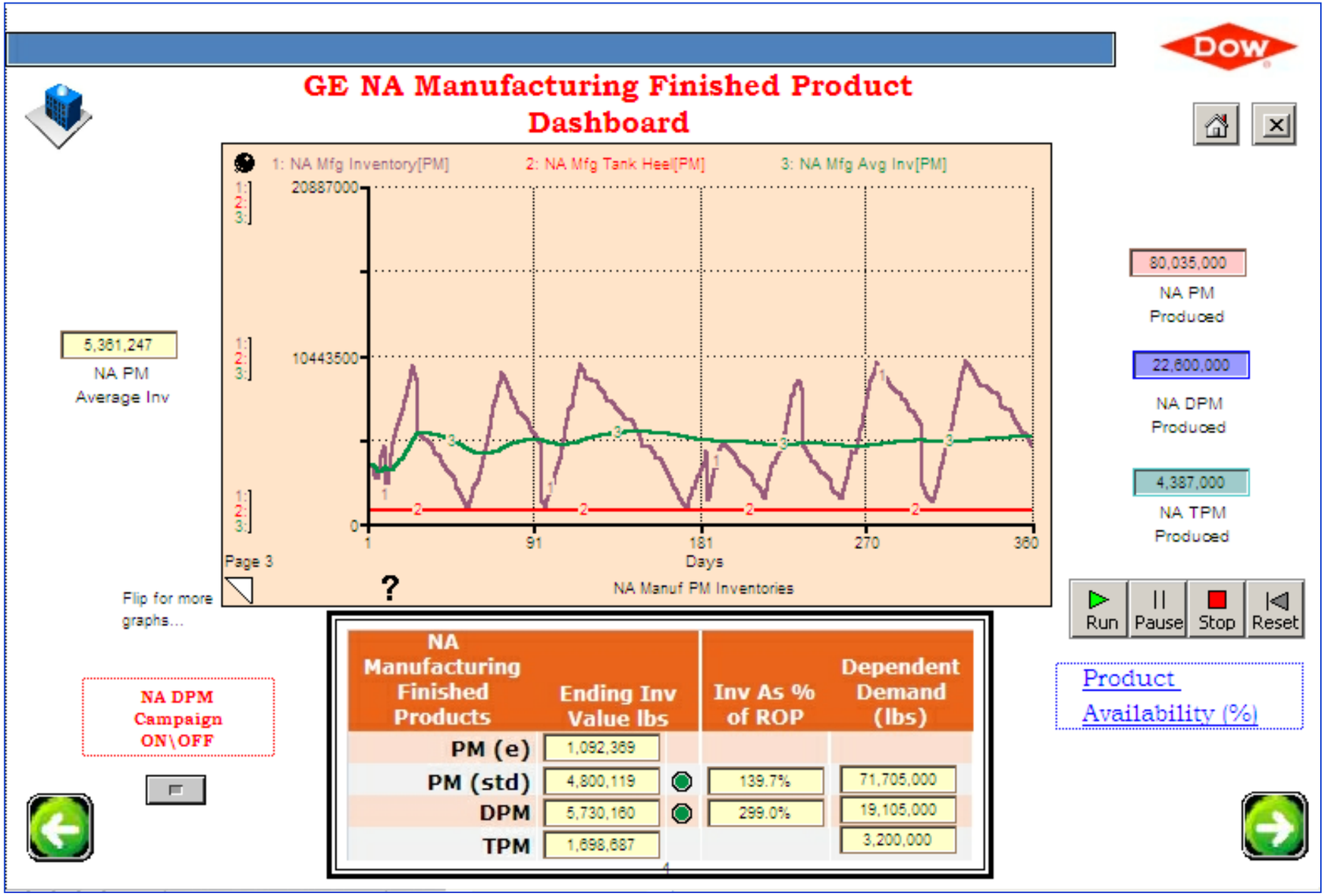


SCRAM™
Supply **C**hain **R**esilience **A**ssessment & **M**anagement
developed by
Center for Resilience & Industry Partners @ The Ohio State University

Source: Pettit, Fiksel, Croxton, *Journal of Business Logistics*, 2010

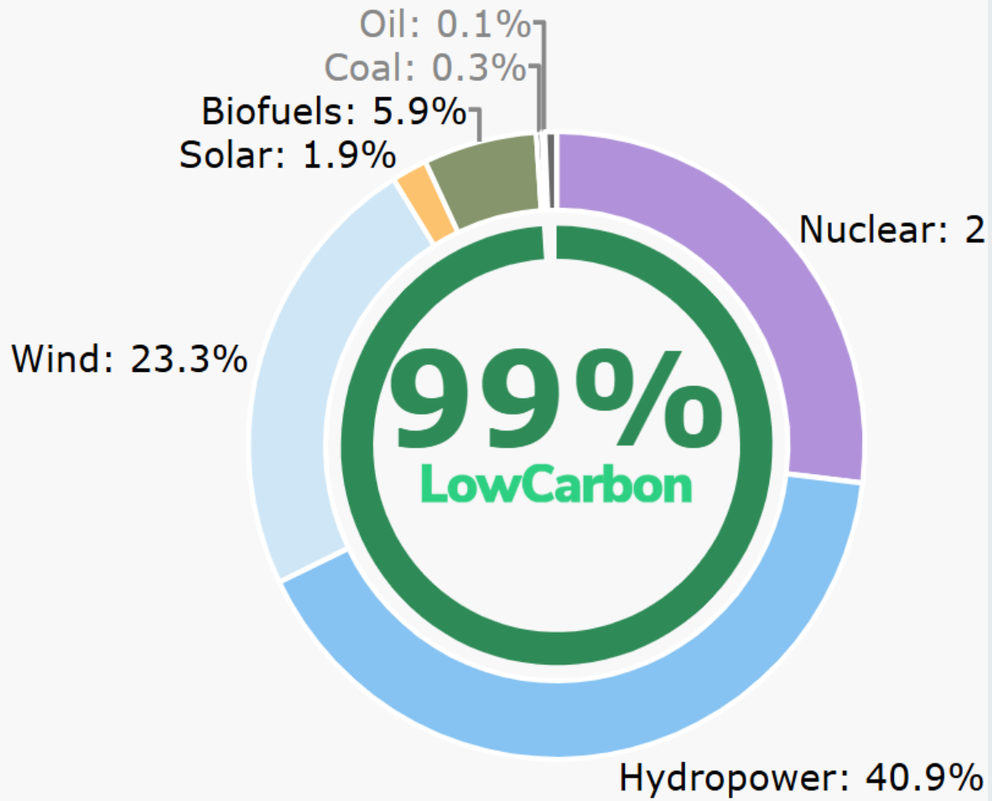
SCRAM™ Case Study: Dow Chemical

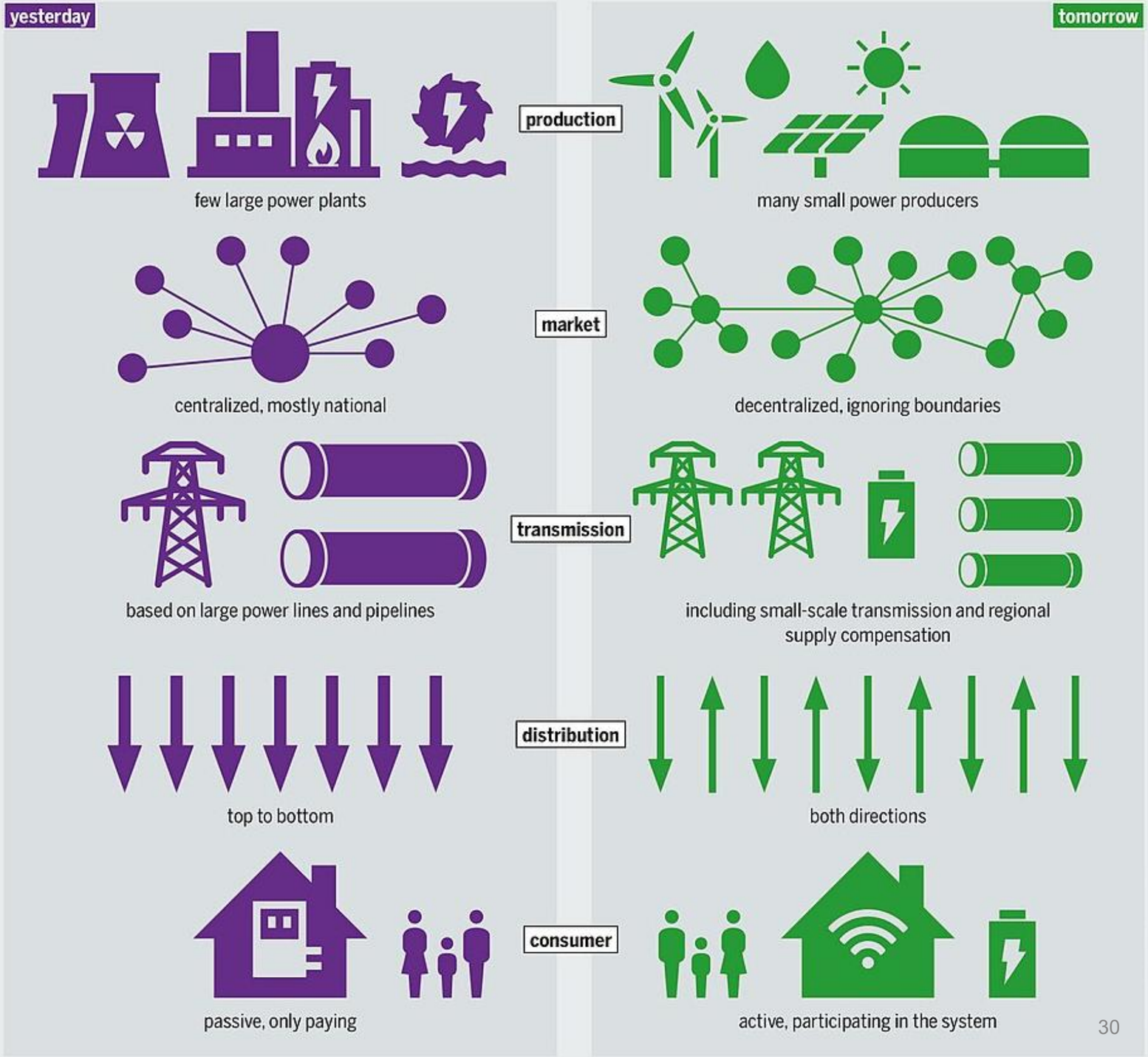
- Dow applied the approach to 22 business units
- **Glycol Ethers** was an early adopter, using simulation analytics
- Qualitative results:
  - System understanding
  - Enriched scenario testing
  - **Competitive advantage**
- Quantitative Results:
  - 2 million lbs. reduced inventory requirements
  - Operating cost reduction $200,000 per year



Evolving Technologies

Sweden's Energy Portfolio







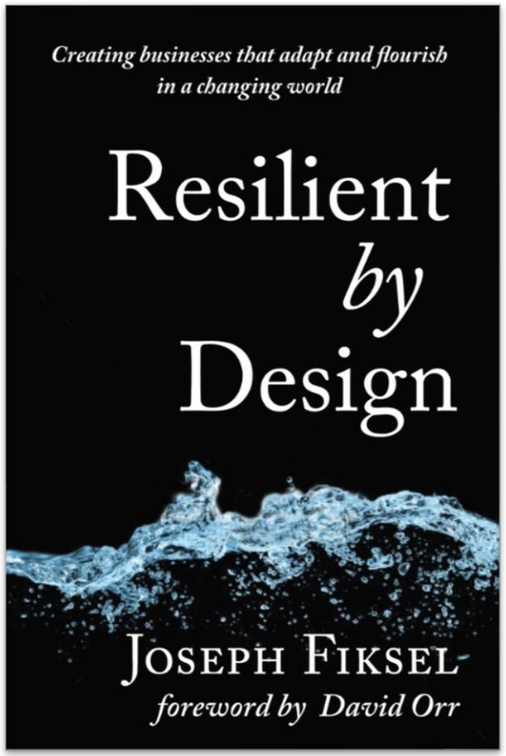
Thank you!

…and stay resilient!



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Peter Williams
rpwilliams1958@gmail.com



Navigating the Sustainability-Resilience Nexus

preventionweb.net/media/108049

J. Fiksel, D. Johnson, J. Katz, **P. Williams**

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PRIVATE SECTOR ALLIANCE FOR DISASTER RESILIENT SOCIETIES

(includes modeling of **Triple Value** System Dynamics by **US EPA** for Narragansett Bay, Rhode Island)

Energy Systems and Enterprise Resilience

From Risk Management to Strategic Resilience

Joseph Fiksel, Ph.D. | Author of *Resilient by Design*

SECURITY AND SUSTAINABILITY FORUM
Secure the judgment to act in a world under pressure

What Participants Will Learn

Exposure:	Why energy dependence is a risk that conventional risk management overlooks
Assessment:	How to assess vulnerabilities and capabilities, within and beyond the fence line
The business case:	How to quantify the cost of disruption and justify the investment

8 Hours	Eight Recorded Sessions	$495
Available Friday, January 29, 2027	Watch on your own schedule	Registration fee

Register by January 15 for a seat in the live Q&A work session with Joseph Fiksel

Recorded, Applied Learning

Eight one-hour sessions, each a detailed slide presentation with voice-over

Downloadable slide decks, references, and reading lists

Energy Basics 101 primer, available the moment you register

No engineering background required

Pass the quiz to earn a Certificate of Completion.
Counts toward the four- and seven-course certificates.

bitly

[Syllabus and Registration]

Course Content

Eight recorded sessions in three blocks

SECURITY AND SUSTAINABILITY FORUM
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BLOCK I

The Role of Energy Systems in Enterprise Resilience

1. The Risk Landscape
   Why enterprise resilience is urgent in a turbulent business environment
2. Disaster Risk Reduction
   Interdependencies and disruptions in global energy and material networks
3. Taking a Systems Approach
   The Triple Value framework linking resilience and sustainability

BLOCK II

Energy Resilience in Action

4. Resilience Assessment
   Risk exposures, vulnerabilities, capabilities, and what resilience costs
5. System Interactions
   Links among businesses, communities, and environmental resources
6. Strategic Foresight
   Anticipating shifts that disrupt enterprise continuity or viability

BLOCK III

Developing Resilient Systems

7. Innovative Approaches
   A stepwise process for balancing resilience with other priorities
8. The Value Proposition
   Opportunities and methods for monetizing resilience investment

Case studies of major energy disruptions, and how government and industry responded

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[Syllabus and Registration]

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