



WORLD X

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Vilnius

Prof. Dr. Renaldas Gudauskas
Nacionalinės Martyno Mažvydo bibliotekos
Generalinis direktorius

CRITICAL FAILURE IS THE CENTRE OF GRAVITY IN THE TECHNOLOGICAL CATEGORY



Source: World Economic Forum



TECHNOLOGICAL RISK DESCRIPTION

Critical systems failure

Single-point system vulnerabilities trigger cascading failure or critical information infrastructure and network.

Cyber attacks

State-sponsored, state affiliated, criminal or terrorist cyber attacks.

Failure of intellectual property regime

Ineffective intellectual property protections undermine research and development, innovation and investment.

Massive Digital misinformation

Deliberately provocative, misleading or incomplete information disseminates rapidly and extensively with dangerous consequences.

Massive incidents of data fraud/theft

Criminal or wrongful exploitation of private data on an unprecedented scale.

Mineral resource supply vulnerability

Growing dependence of industries on minerals that are not widely sourced with long extraction-to-market time lag for new sources.

Proliferation of orbital debris

Rapidly accumulating debris in high-traffic geocentric orbits jeopardizes critical satellite infrastructure.

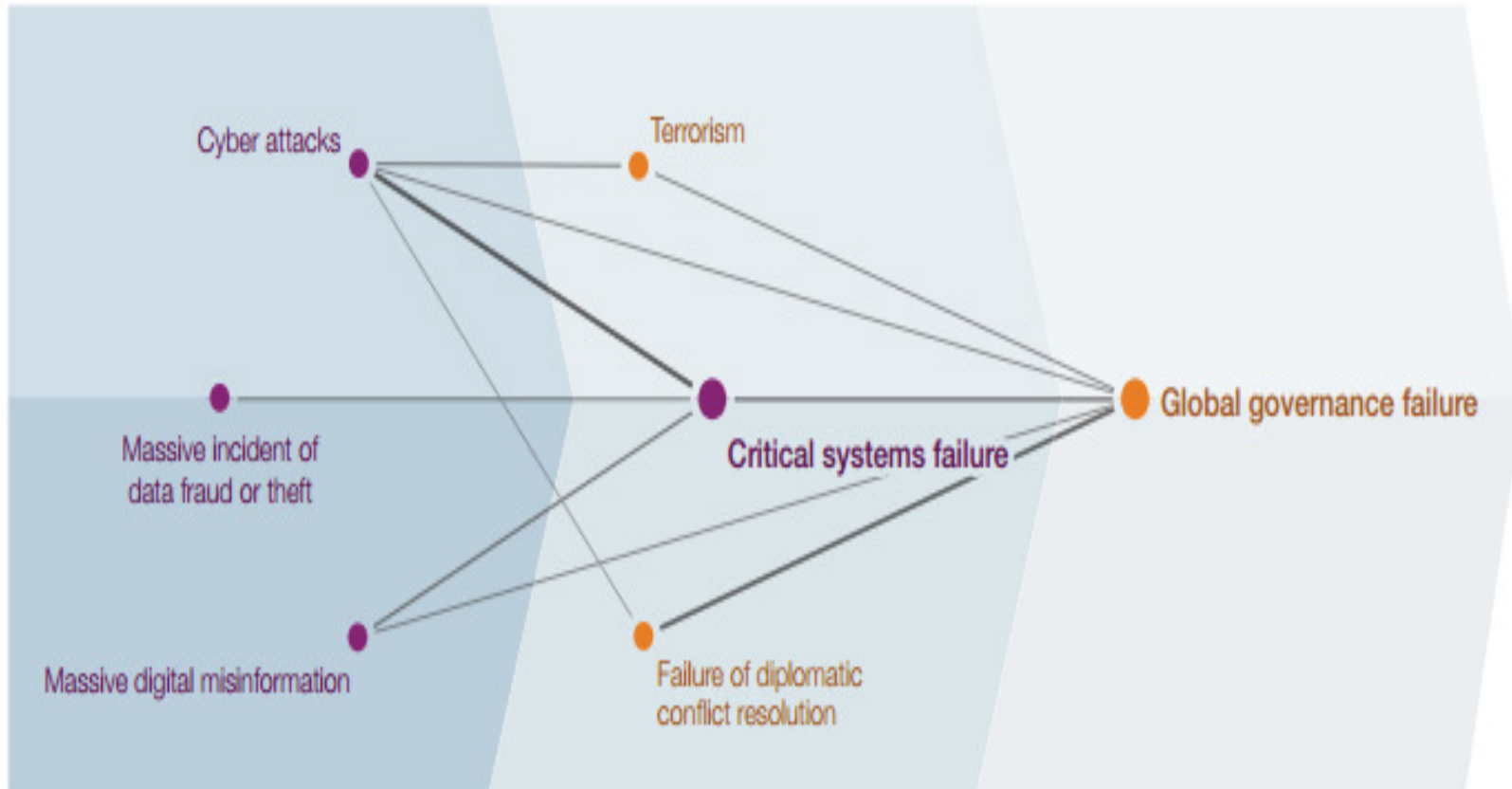
Unintended consequences of nanotechnology

The manipulation of matter on an atomic and molecular level raises concerns on nanomaterials toxicity.

Unintended consequences of new life science technologies

Advances in genetics and synthetic biology produce unintended consequences, mishaps or are used as weapons.

THE DARK SIDE OF CONNECTIVITY CONSTELLATION



Origin Risk

Increasing capabilities for cyber crime and attacks.

Pathways

Balance-of-power tips as new actors can wage effective interference and disrupt commerce.

Manifestation

The traditional system of global governance is undermined.

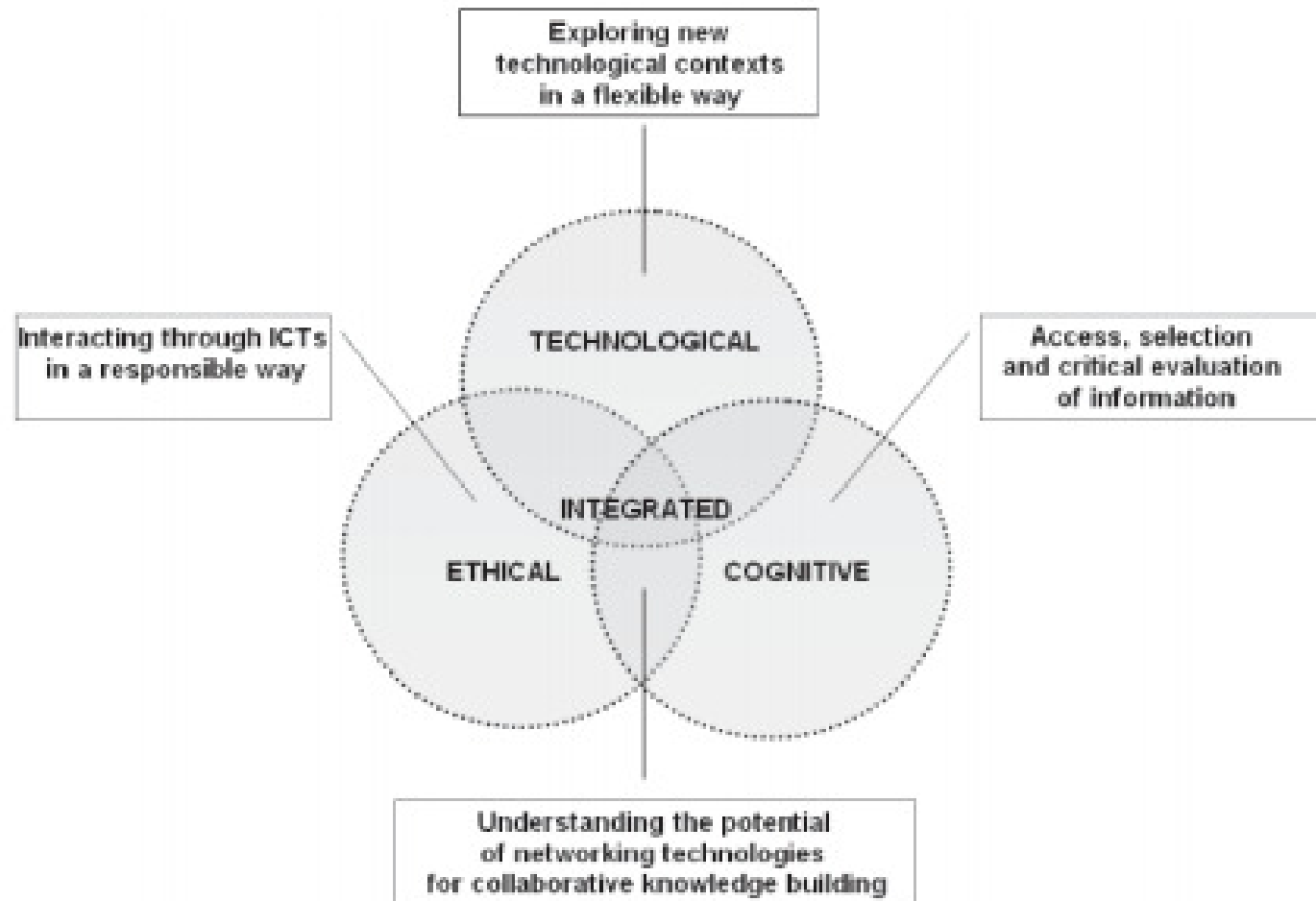
Source: World Economic Forum



NETWORK ORGANIZATIONS FARE BETTER IN SUSTAINED CRISIS

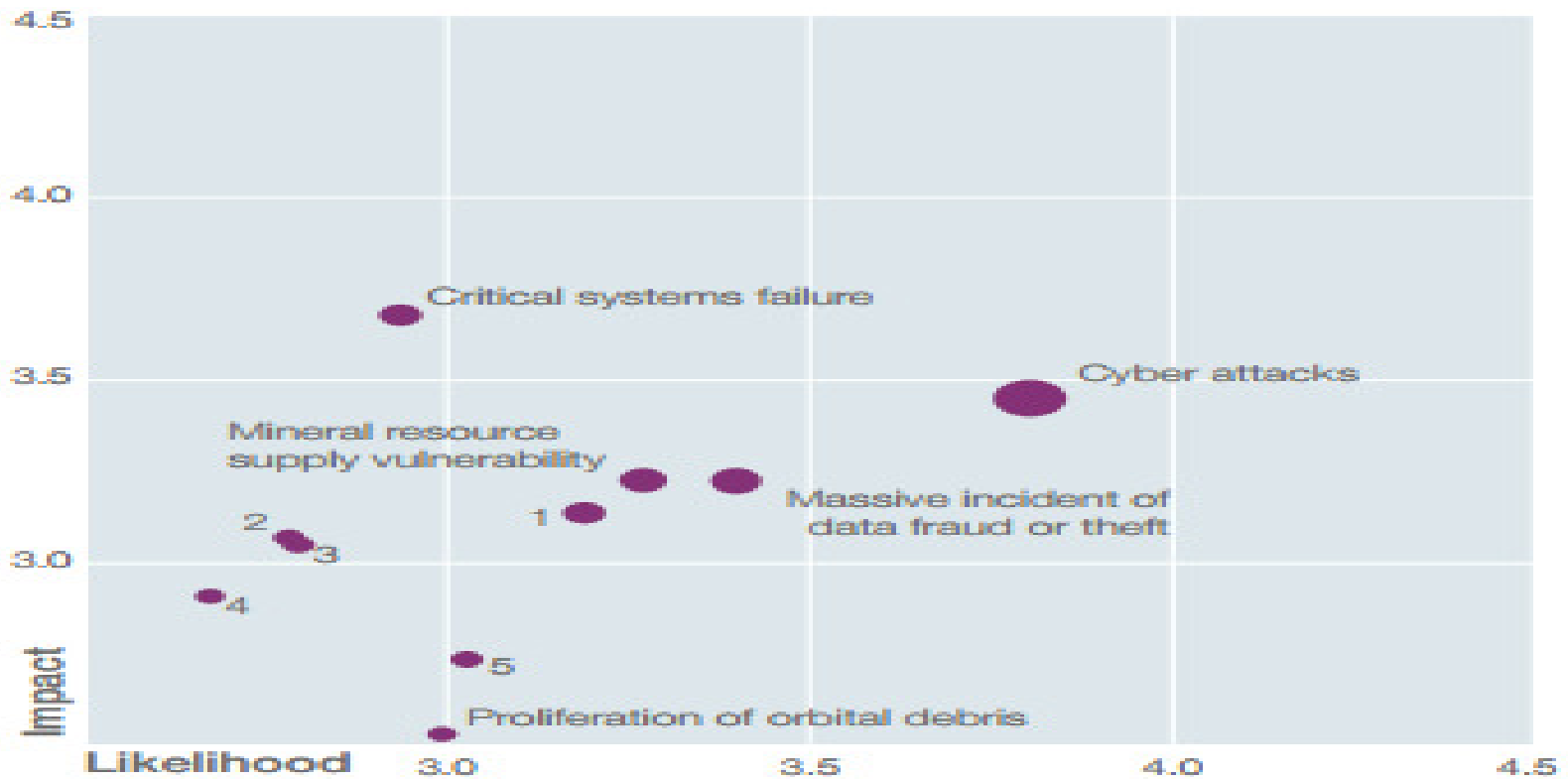
Organization 1	Organization 2
Hierarchical	Networked
Centralized leadership	Distributed leadership
Tightly coupled (greater interdependence among parts)	Loosely coupled (less interdependence)
Concentrated workforce	Dispersed workforce
Specialists	Cross – trained – generalists
Policy and procedure driven	Guided by simple yet flexible rules

DIGITAL COMPETENCE ASSESSMENT



Source: Calvani et al. (2009)

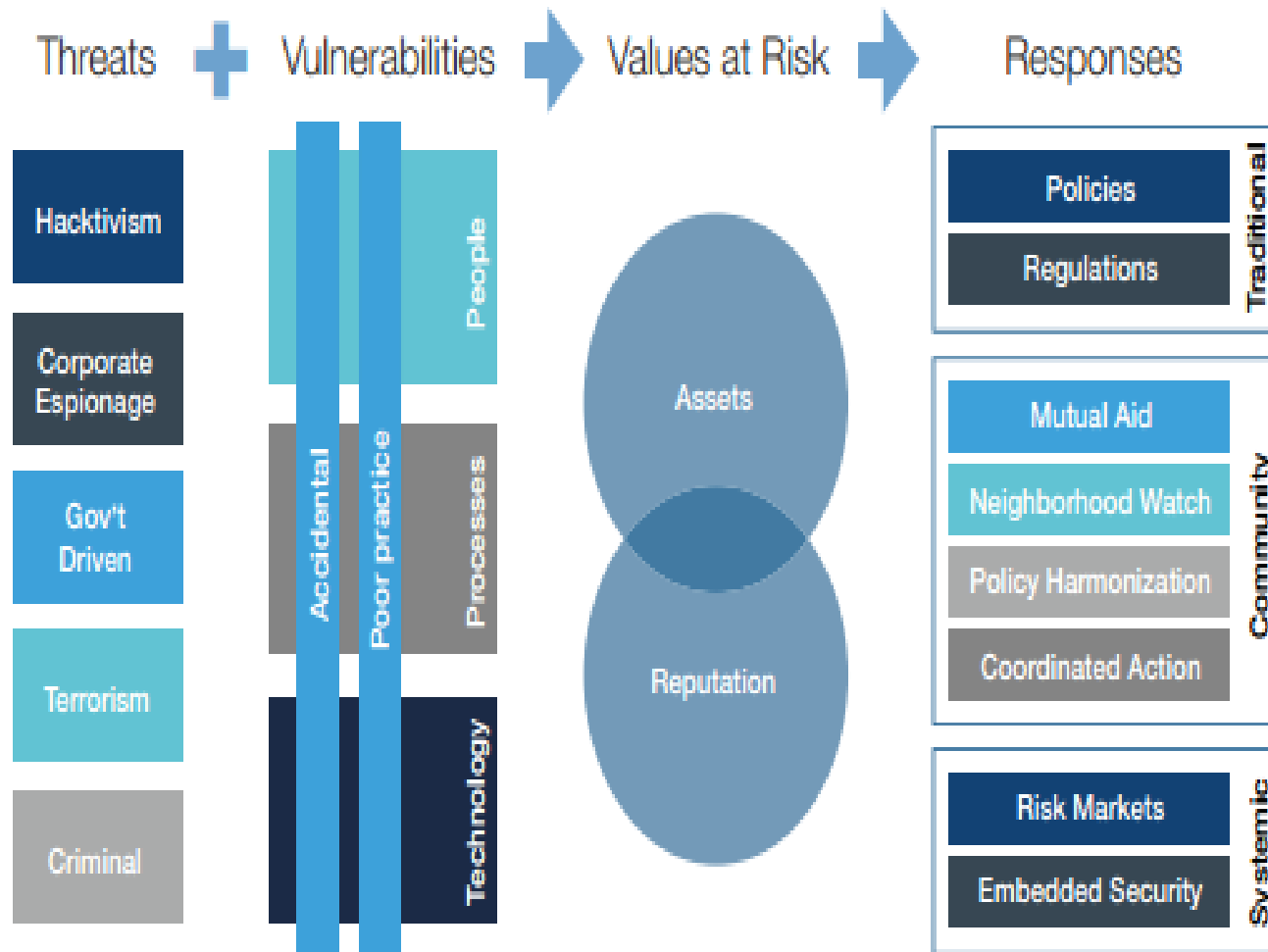
TECHNOLOGICAL RISKS



- ① Massive digital misinformation
- ② Unintended consequences of new life science technologies
- ③ Unintended consequences of climate change mitigation
- ④ Unintended consequences of nanotechnology
- ⑤ Failure of intellectual property regime

Source: World Economic Forum

FRAMEWORK FOR CYBER THREATS AND RESPONSES



Source: World Economic Forum