



SBA  
Research

# Introduction to systemic-resilience & cyber-resilience

Kevin Mallinger, SBA Research



# Why resilience

No matter how well a system is engineered, it will always be prone to errors and vulnerabilities (Herley & Oorschot 2017)

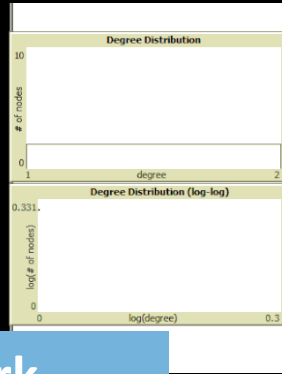
Complex systems have emergent and unpredictable behavior

Delivers new narratives and design principles

# Analysis, Modelling, Prediction of Complex Systems

Tipping-Point

Network  
evolution



Pattern  
simulation



# Working definition

“Resilience is the capacity of a system to **continually change** and **adapt** yet remain within **critical thresholds**”

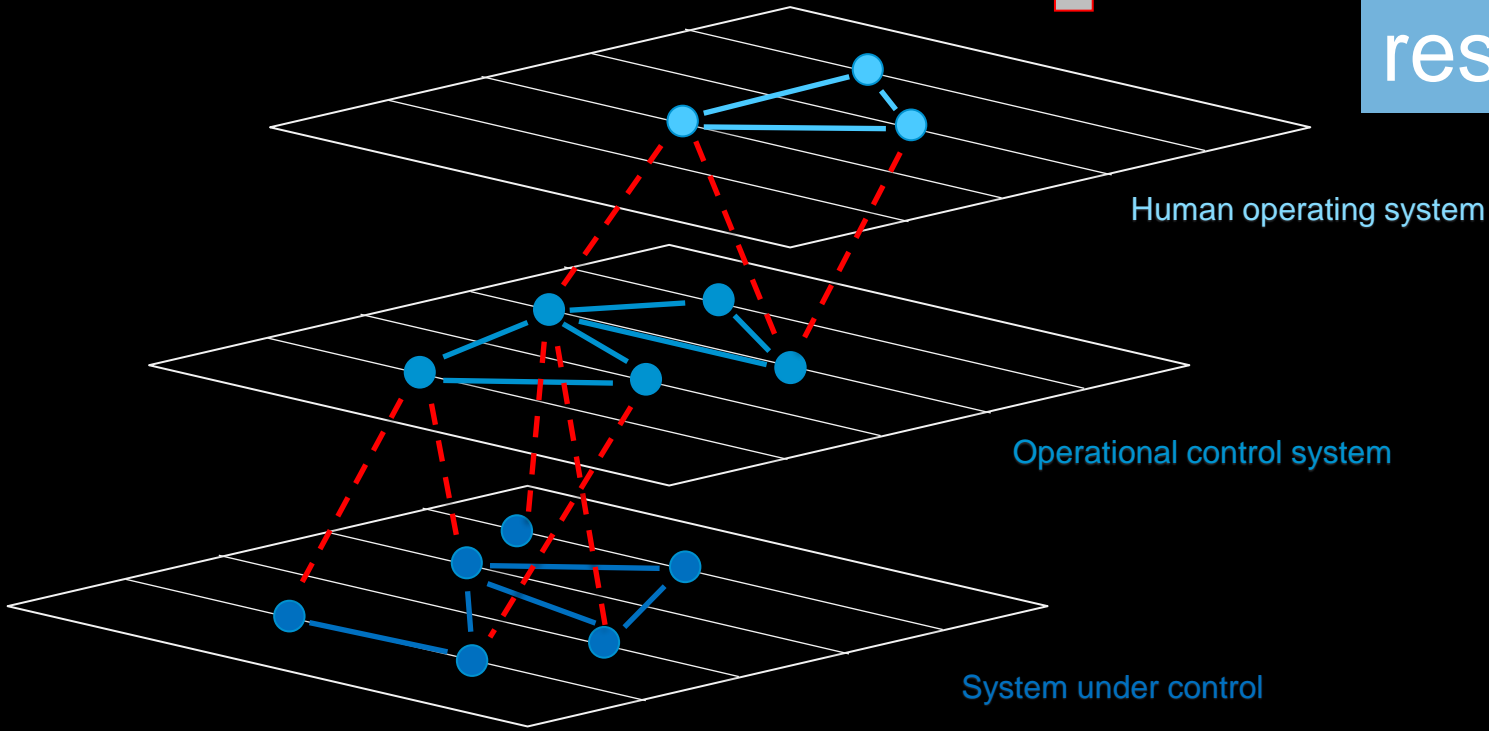
(Folke et al., 2010)

... in the context of cyber-adversaries

... in the context of cyber-physical systems

# Critical infrastructure resilience

Socio-environmental-technical systems



(based on Nan & Sansavini, 2017)

Klassifikation: Öffentlich

The background of the slide is a stylized globe of the Earth. Overlaid on the globe is a complex network of glowing lines in shades of blue, green, and yellow, representing a global network or data flow. The lines are most concentrated in the lower half of the globe and radiate outwards. The overall aesthetic is high-tech and digital.

# Quality attributes

*Adaptability*

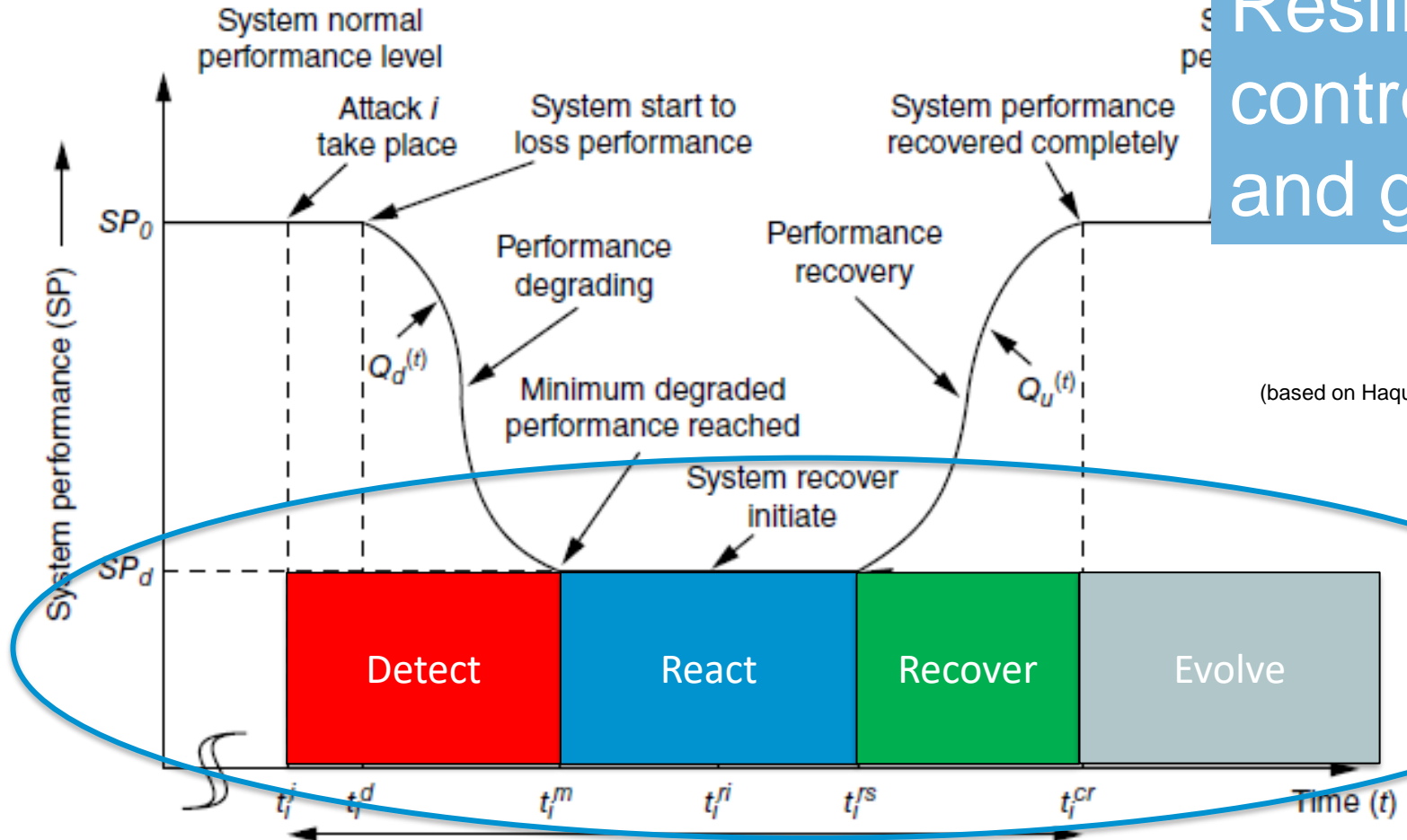
*Availability*

*Reparability*

*Maintainability*


*Reliability, Redundancy, Diversity, etc.*

# Resilience controls and goals



(based on Haque et al., 2020)





Resilience is not  
safety or security!

But it compliments both, as it delivers the requirements  
of a system to fulfill safety and security objectives

# Kevin Mallinger

## SBA Research gGmbH

Favoritenstraße 16, 1040 Wien

+43 (0) 67761641838

kmallinger@sba-research.org

# Literature

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