SEFS Future and Trends

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Abstract

In the previous century, the military and aerospace domain developed systems engineering to support the development of complicated systems. The functionality and services that we are using depend on the interaction of many systems and organizations. We call this complex rather than complicated. When developing complex systems, the developers cope with more uncertainties, and unknowns, and the inherent complexity of the dynamics between many systems and humans. Digitalization facilitates the development of interconnected systems. We view models as a means to help us coping with the complexity

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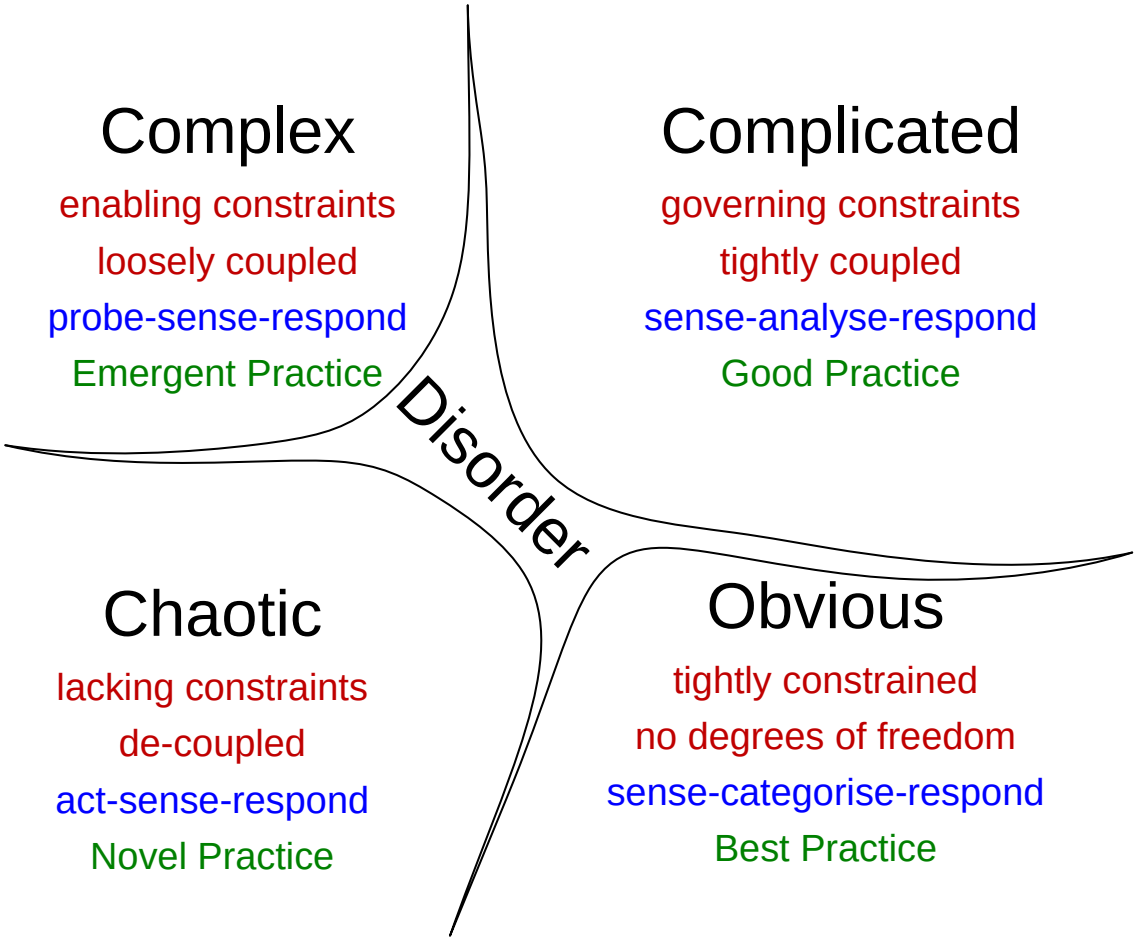
November 1, 2020
status: preliminary draft
version: 0.1

SE in Cynefin; Moving into Complex

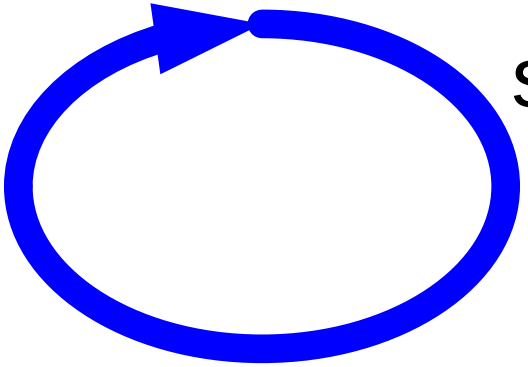


after: Dave Snowden, a.o. https://en.wikipedia.org/wiki/Cynefin_framework

Systems Engineering originates in Complicated

Many problems move into Complex

Challenges in Systems Engineering



discover latent needs
enable emergence
where is the business

creativity

globalization
hype waves
Moore's law

market dynamics

security

privacy, DRM
versus usability

sustainability

17 UN sustainability
development goals

interoperability

emerging behavior
future vs legacy
heterogeneous vendors

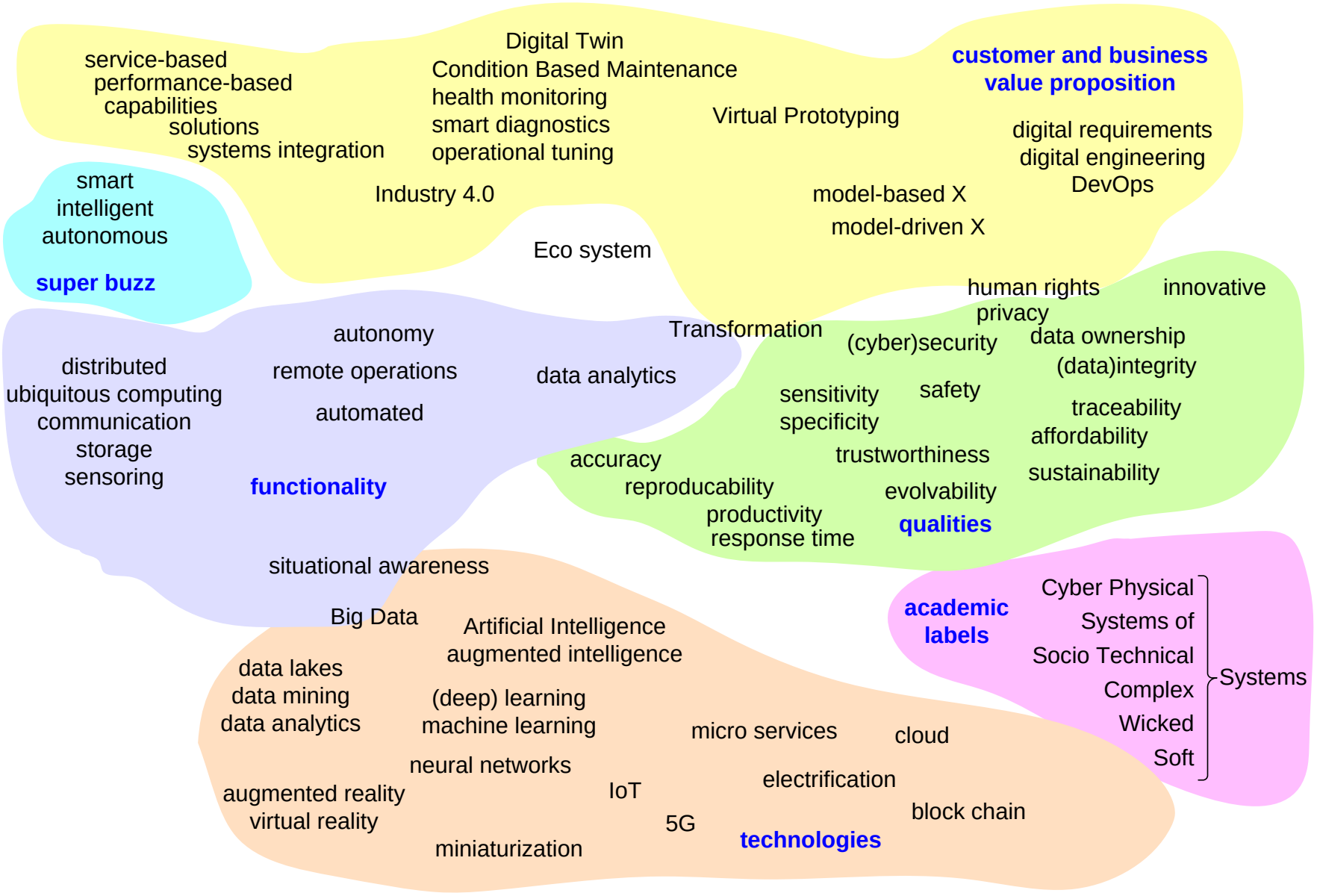
power consumption

weight, cost, performance

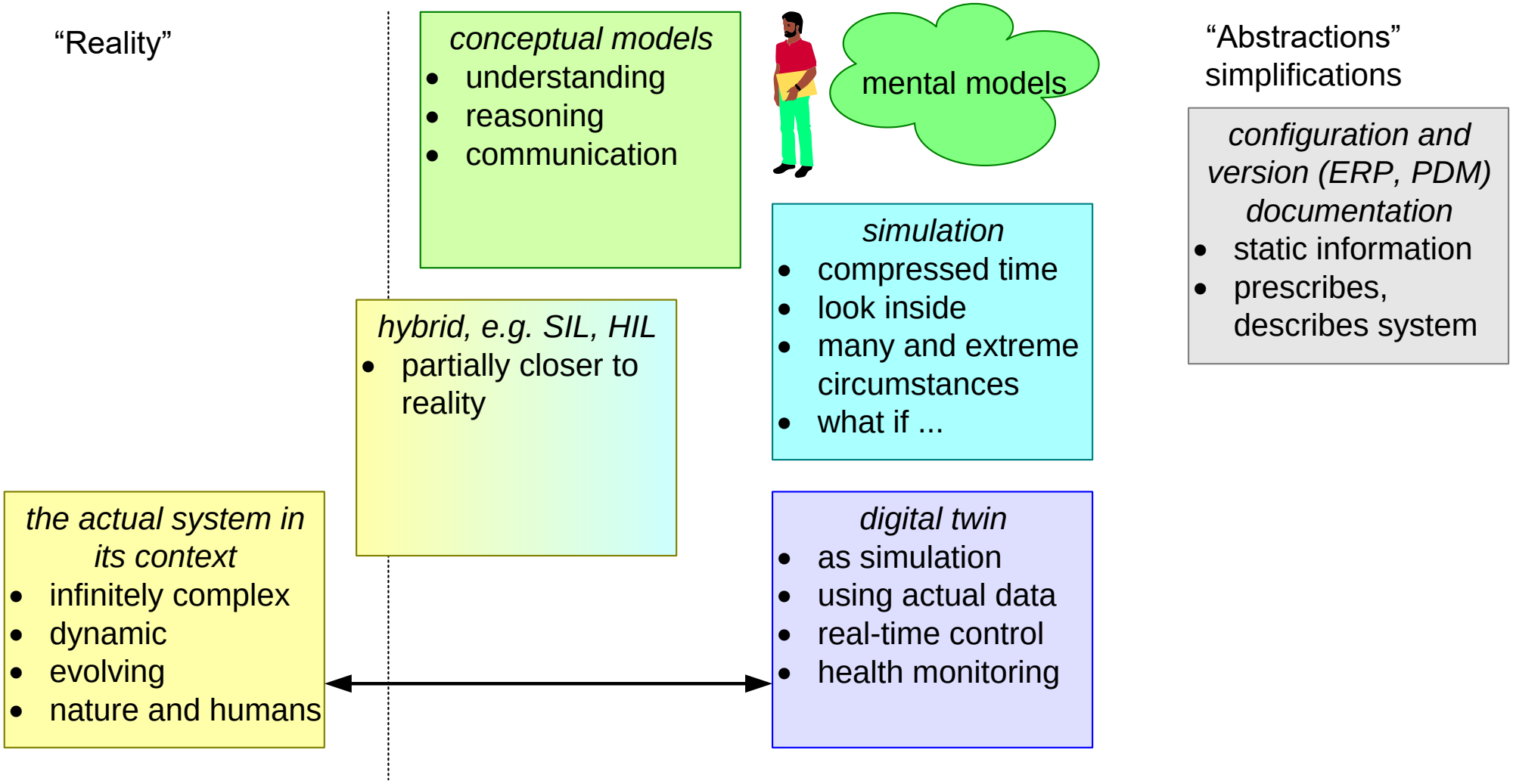
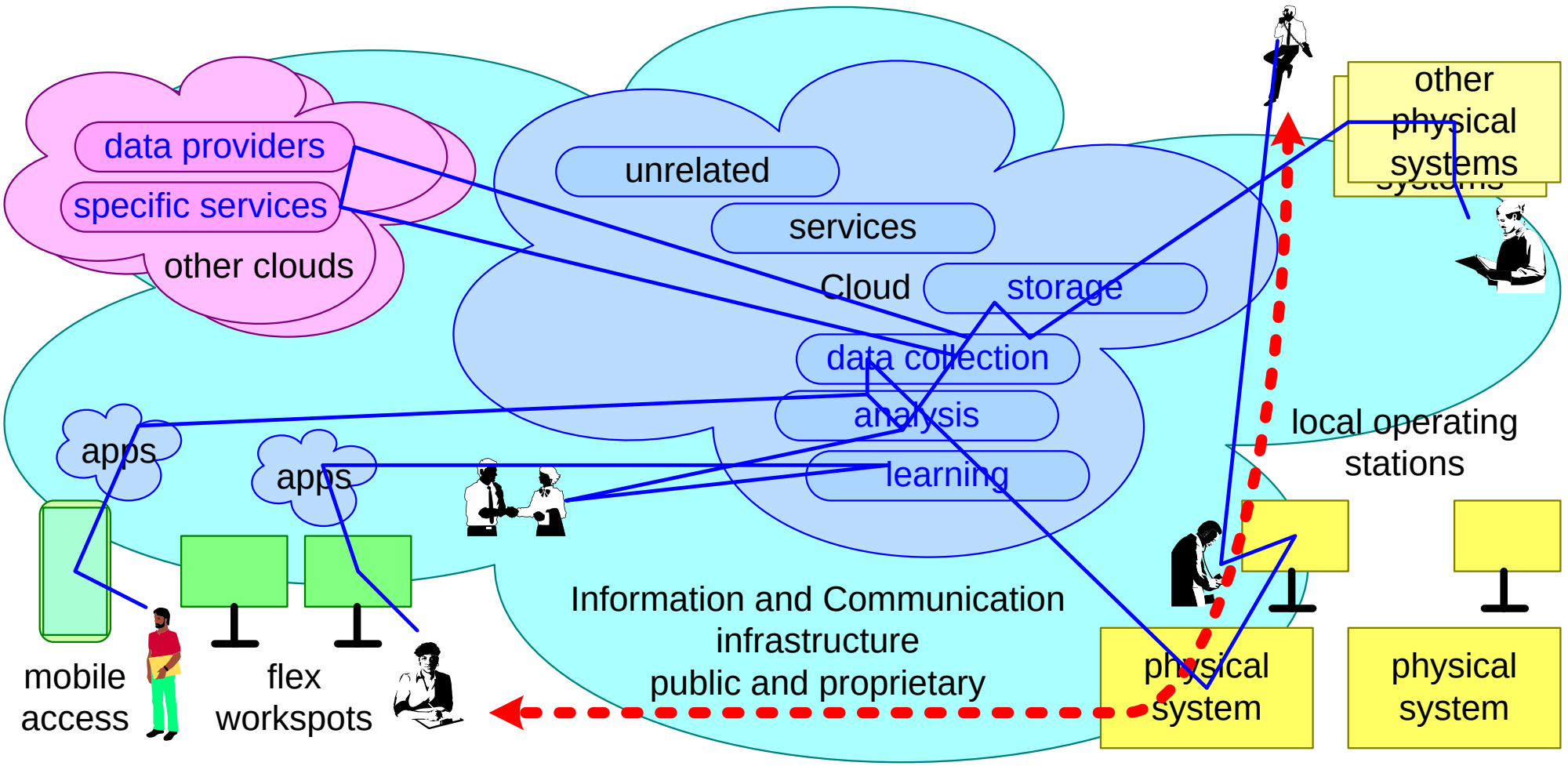
reliability, resilience

complexity, heterogeneity
#engineers involved

Digitalization Cloud



Digital Twins



Systems of Sytems