National Cyber Security Centre

Safety v Security: Challenges and Applications in the Cyber Security Era

An NCSC Perspective

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Safety V Security: Challenges and Applications in the Cyber Security Era
An NCSC Perspective

- Intro to the role of the NCSC

- An example of how NCSC collaborates with Industry and Academia, to tackle challenges such as Safety and Security (STAMP framework)

- 3 Core Questions

National Cyber Security Centre

National Cyber Security Centre

Vision:
To make the UK the safest place to live and work online

Act as a bridge between industry, government and academia

Unified source of advice, guidance and support on cyber security

National Cyber Security Centre

Breadth of Engagement

Critical National Infrastructure

Economy and Society

Defence and National Security

Digital Government

What are the core principles for safety and security that are applicable across such diverse contexts?

Bring Safety and Security Together

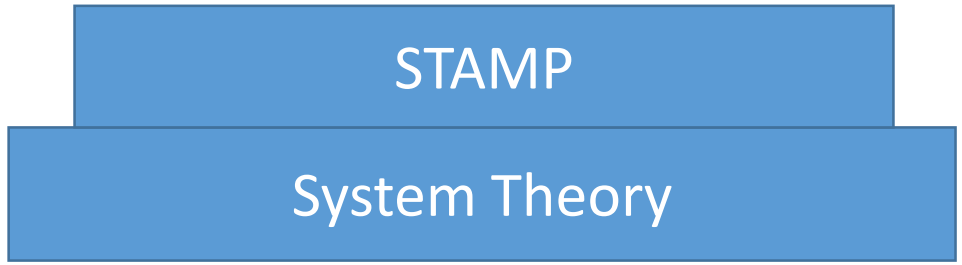
An Example of NCSC Research on Safety and Security: STAMP (Systems Theoretic Accident Model and Processes)

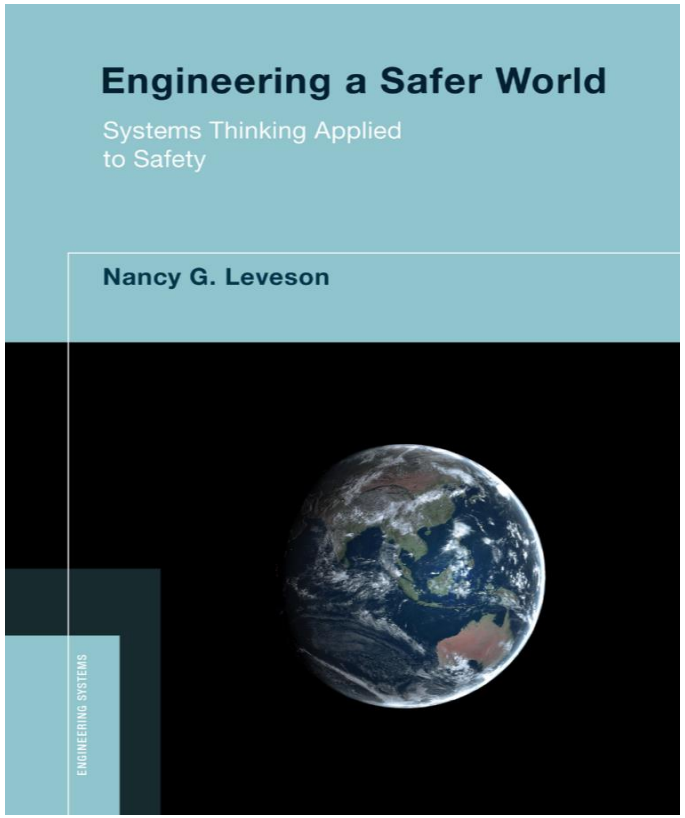
- Collaboration between academia, industry and NCSC

- Techniques that support the core principle of **Bringing Together Safety and Security**

STAMP
Systems Theoretic Accident Model and Processes

- A framework to bring together Safety and Security Risk Management
- Initially developed for a Safety Engineering context by Nancy Leveson at MIT
- Built on the foundation of System Theory and its principles (Hierarchy and Emergence, Communication and Control)





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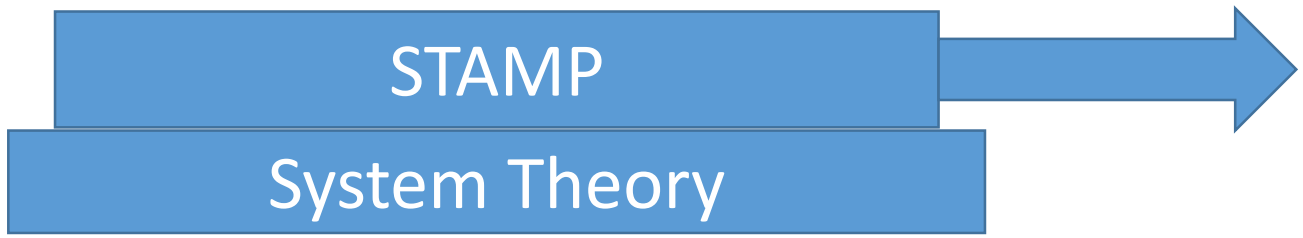
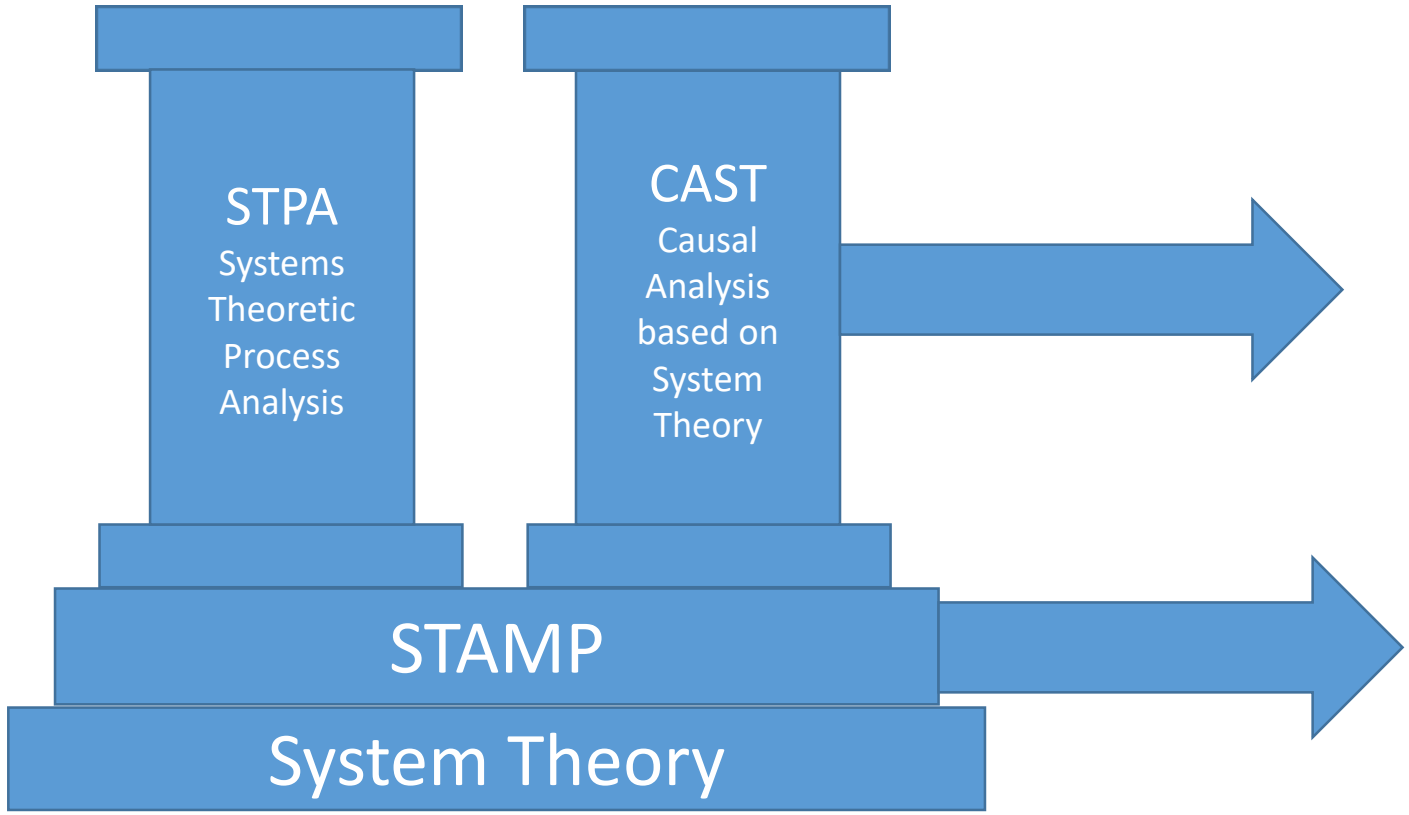
Techniques Built on the STAMP Framework



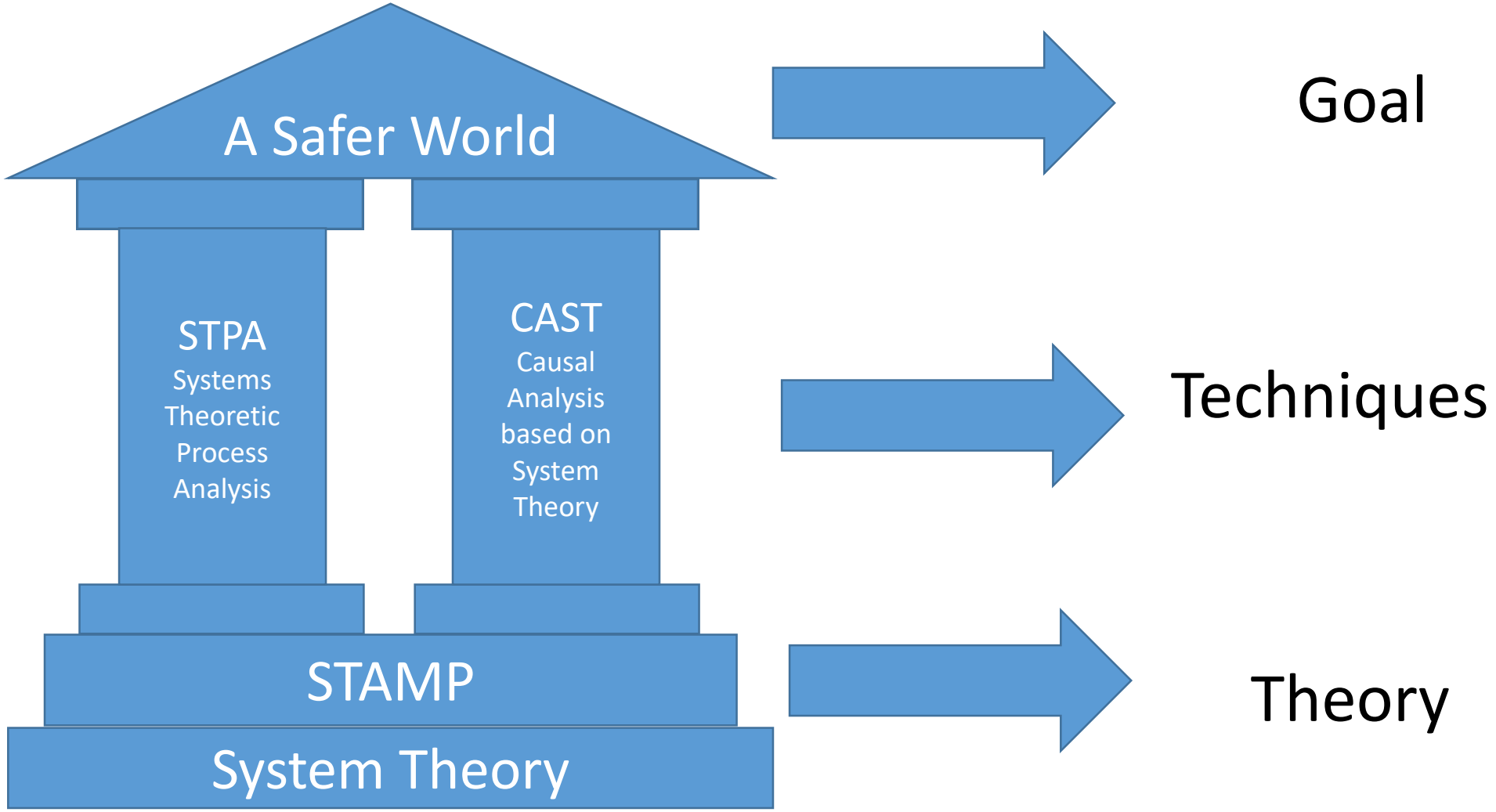
Accidents are caused by inadequate control

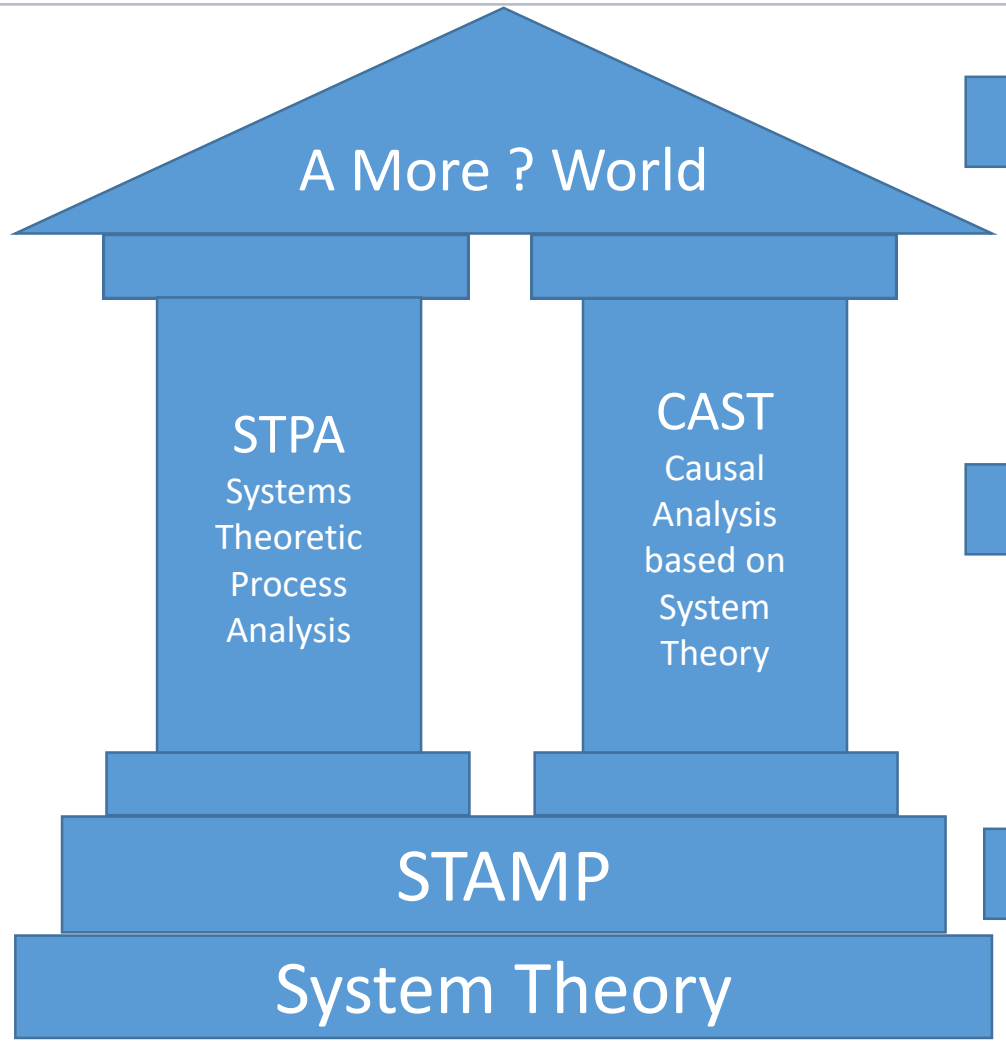


How do we find inadequate control in a design or in operations?

How do we find inadequate control that caused the accident?

Accidents are caused by inadequate control

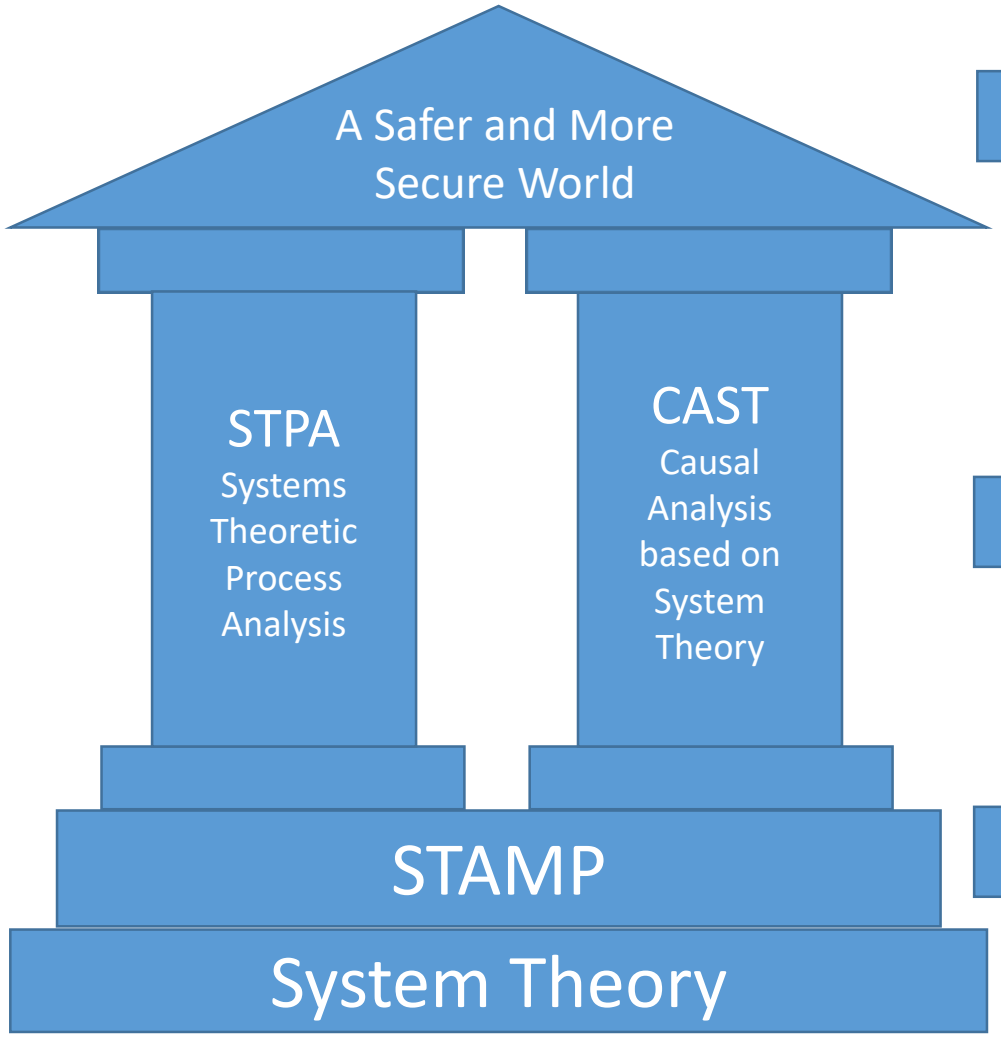




Goal – to control **any** emergent property

Techniques

Theory



Goal: Security / Safety / Both / Others ?

Techniques

Theory

What are the core principles for safety and security applicable across such diverse contexts?

1. Bring Together Safety and Security
2. ???
3. ???

What are the significant differences in context that impact upon the approach to safety and security?

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Different contexts

Enterprise IT

Industrial Environments

Consumer Products

Significant differentiators?

- Scale
- Criticality
- Connectivity
- Updatability
- Dependency on Infrastructure

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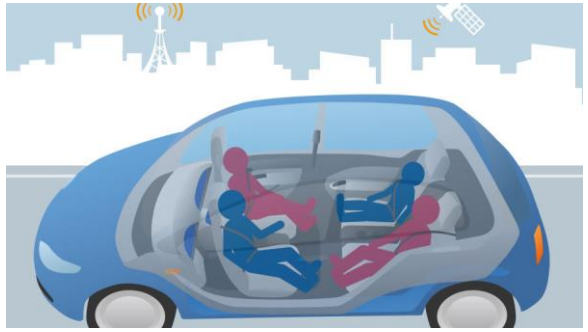
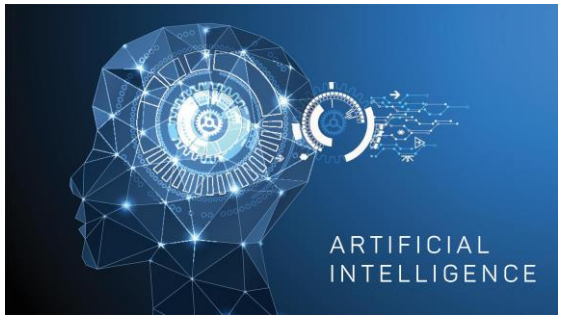
Striking the Right Balance

Core Principles

Differences in Context

What's next?





How do we future-proof our answers?

Questions?