Welcome to STAMP/STPA 2021 Virtual Workshop

What is STAMP?

- New accident causality model
  - Based on systems theory
  - Includes entire sociotechnical system (hardware, software, human operators, management, culture, government agencies)
- Analysis Tools and Techniques built on STAMP
  - STPA (and STPA-Sec)
  - CAST
  - Leading Indicators
  - Risk Assessment
  - Safety Management System design
  - Others

Workshop Highlights

- Regular Presentations
- Lightning Talks
- Interesting Uses Spotlight

Attendance

- 2,150+ people registered. Last year also over 2,200
- Industries represented (largest representation first)

Aviation	Robotics
Automotive	Transportation
Academia/Universities	Maritime/Ships
Defense	Agriculture
Oil/gas/chemicals	Insurance
Medical/Healthcare	Financial
Power/Energy/Nuclear	Mining
Space	Iron and Steel
Rail	Workplace Safety
Communications, IT	[entertainment,
Software	printing and packaging, …]

Countries of Registrants Past Two Years (80)

Argentina	Denmark	Iceland	Mexico	Saudi Arabia
Australia	Dominican Rep.	India	Morocco	Scotland
Austria	Ecuador	Indonesia	Nepal	Serbia
Bahrain	Egypt	Iran	Netherlands	Singapore
Bangladesh	El Salvador	Ireland	New Zealand	South Africa
Belgium	England	Israel	Nicaragua	South Korea
Brazil	Estonia	Italy	Nigeria	Spain
Canada	Fiji Islands	Ivory Coast	Norway	Sweden
Chile	Finland	Japan	Oman	Switzerland
China	France	Kenya	Pakistan	Taiwan
Columbia	Georgia	Kosovo	Peru	Thailand
Costa Rica	Germany	Krygyz Rep.	Poland	Tunesia
Croatia	Ghana	Kuwait	Portugal	Turkey
Cuba	Greece	Lithuania	Qatar	UAE
Cyprus	Hong Kong	Luxembourg	Romania	USA
Czech Rep.	Hungary	Malaysia	Russia	Vietnam

Aviation

- 19 OEMs (160 people)
- Civil Aviation Agencies from: U.S., Canada, Brazil, Japan, Ireland, UK, Italy, Poland, Greece, Switzerland, Norway, Austria, Lithuania, Republic of Kosovo, Krygyz Republic, Georgia, Oman, Qatar, New Zealand, Ghana, Argentina, Chile, Brazil, India, EASA (Germany, Italy, France) plus IATA and ICAO
- 131 other aviation groups (airlines, companies) (about 400 people)

Other Large Industrial Participation

- Defense: 179 groups, 300 people
- Automotive: 126 companies (228 people)
- Universities: 154 different universities
- Other areas (healthcare, rail, workplace safety, nuclear, oil & gas, etc.) have many more attendees than in the past

Some News

- STPA Handbook (Thomas and Leveson)
  - 110,000+ downloads so far
  - Japanese version (11,000+ downloads)
  - Korean, and Chinese versions
- CAST Handbook (Leveson)
  - Korean and Japanese versions
- New version of Safeware is almost completed

Recent Theses

- Dro Gregorian and Sam Yoo: A System-Theoretic Approach to Risk Assessment in Aircraft Development
- Lawrence Wong: Enabling Effective Safety Learning in Health Care: Implementing CAST and Designing the STAMP-Based Reporting System
- Alan Kharsansky: A Systemic Approach to Modeling and Analyzing Scalability, Reliability, and Safety in Satellite Constellations
- Brandon Baylor: A System-Theoretic Approach Oil and Gas Assurance Programs
- Rachel Cabosky: Application of Hierarchy to STPA: A Human Factors Study on Vehicle Automation

Research Projects (in Progress)

- Hazard Analysis for Systems using AI
  - JAXA/JAMSS
  - Michael Schmid (AI Learning systems)
- Safety of Medevac flights in degraded visual environments (Army)
- UAM: Modeling and Analysis of Safety in Advanced Human-Automation Teaming (NASA)
- Safety and Security in Complex Defense Systems (Army Future Vertical Lift and Autonomous Aircraft, with Lincoln Lab)
- Commercial Aircraft Certification and Safety Assessment (with BUAA)
- Safety of Pharmaceutical Ordering in Hospitals

Leveson White Papers

- Improving the Standard Risk Matrix: Part 1
- An Engineering Perspective on Avoiding Inadvertent Nuclear War (Workshop on NC^3)
- Safety 3: A Systems Approach to Safety and Resilience (and why Safety 2 is dangerous)
- An Improved Design Process for Complex, Control-Based Systems Using STPA and a Conceptual Architecture
- How to Perform Hazard Analysis for a "System of Systems"
- A More Powerful Approach to Process Safety
- Limitations of Safety Assurance and Goal Structuring Notation (GSN)
- Shortcomings of the Bow Tie and Other Safety Tools based on Linear Causality
- Are you Sure Your Software will not Kill Anyone?

In Progress:

- Improving the Standard Risk Matrix: Part 2
- A Systems Approach to Occupational/Workplace Safety

Logistics for the Workshop

- Zoom and streaming
- Tapes for workshop: MIT requires captioning
- Future plans
  - In-person in March, virtual in the fall

Participation Information (updated Jun 25)

2400 registrations

Countries (last 2 years): 83

[Following list omits consultants and consulting companies in multiple fields. Unique companies/groups, not # of people]

Aviation:

- OEMs: 23
- Government: 35
- Airlines (probably pilots): 28
- Companies, research groups: 115

Defense

- Government: 27
- Industry plus research: 74

Automotive: 139

Participation Information (2)

Rail: 34

Medical/Healthcare: 61

Workplace Safety: 64

Nuclear, Energy: 42

Oil, Gas, Chemicals: 49

Space: 24

Network, Technology/Software, Security, Telecommunications: 88

Consultants: lots

Contact us if interested in potential virtual Birds of a Feather sessions