

## Systems Engineering Test & Evaluation Conference 2020 - Draft Program (Tutorial Day)

### Monday 11 May 2020 (Tutorials)

7:30	9:00	1:30	Registration			
8:00	8:30	0:30	Session chair and conference presenter briefing			
9:00	10:30	1:30	<b>TUTORIAL</b> Test & Evaluation (Peter Nikoloff [tbc])	<b>TUTORIAL</b> The Beginner's Guide to Model-Based Systems Engineering (MBSE) (David Long)	<b>TUTORIAL</b> Systems Engineering and Enterprise Engineering – Utilising ISO15704:2019 for transforming large scale systems (Peter Bernus)	<b>TUTORIAL</b> Practical Application of Model-Based Systems Engineering in the design of Public Transport Systems (Mark Egger)
10:30	11:00	0:30	<i>Morning tea</i>			
11:00	12:30	1:30	(cont'd)	(cont'd)	(cont'd)	(cont'd)
12:30	13:00	0:30	<i>Lunch</i>			
13:00	14:30	1:30	<b>TUTORIAL</b> A Model-Based Systems Approach to Capability (Daniel Spencer)	<b>TUTORIAL</b> Putting the Systemic (back) into the Engineering of Systems (Jawahar Bhalla)	<b>TUTORIAL</b> Infrastructure Smarter, Faster and More Flexible Ways to Build Networks (John Risson)	(cont'd)
14:30	15:00	0:30	<i>Afternoon Tea</i>			
15:00	16:30	1:30	(cont'd)	(cont'd)	<b>WORKSHOP</b> Demystifying SIL – Assuring safety of Electronic & Software Systems (John Slowey)	(cont'd)
16:30	18:00	1:30	Welcome Reception			

Knowledge Exam

7:00 8:00	18:00 8:30	0:30	<b>Registration</b> Session chair and conference presenter briefing		
7:30	8:30	1:00	Systems Round Table		
8:30	8:35	0:05	Welcome		
8:35	8:40	0:05	Welcome to country		
8:40	8:50	0:10	Platinum Sponsor Address		
8:50	9:30	0:40	Keynote: Looking Back, Living the Future – Tomorrow's Systems Engineering Kerry Lunney (Thales, President INCOSE)		
9:30	10:10	0:40	Keynote: Application of Systems Engineering Practice to Cross River Rail and other Major Projects - a personal perspective Neal Mumford (Queensland Rail)		
10:10	10:30	0:20	Morning tea		
			<i>Systems Engineering in the life cycle</i>	<i>Systems Engineering Tools, Techniques</i>	<i>Architecture in Transport</i>
10:30	10:55	0:25	<b>PANEL</b> <b>Current Systems Engineering Issues in Engineering of Projects: Bill Parkins (SESA)</b> S.Jaques (Risk Engineering Society), B.Smith (Asset Management Council), L.Videtto (Aus Cost Engineering Society), P.Bernus (Griffith)	Choosing a System Architecture: Being Spoilt for Choice Steven Boldeman (Aurecon)	The development and use of standard specifications on the Sydney Metro program David Orr Sydney Metro)
10:55	11:20	0:25		Evaluating the digital readiness of an organization Batdorj Jargalsaikhan (Tussolution Llc)	Lift and Shift of People and Product with UAVs and Urban Air Mobility: An Update on the Challenges and Nova's Efforts in Singapore. Terrence Martin (Nova Systems)
11:20	11:45	0:25	Applying Agile Development Methodologies to Systems Engineering Stephen Craig (Boeing Defence Australia)	<b>PANEL</b> <b>Modelling &amp; Simulation/MBSE/Digital Engineering: Jawahar Bhalla (JBES)</b> B.Spencer (Nova), D.Long (Vitech), Ph.Swadling (Thales)	Ship Evacuation and Systems Engineering Vincent Capizzi (Systra)
11:45	12:10	0:25	Managing complex systems and projects Vernon Ireland (University of Adelaide)		Making systems of systems safe: The use of SILs for rail industry projects Steven Boldeman (Aurecon)
12:10	12:55	0:45	Lunch		SEP Gathering and Networking Vitech GENESYS Simulation Tool Demo. D.Spencer (Spencer Tech)
			<i>Systems Engineering in the life cycle</i>	<i>Test &amp; Evaluation</i>	<i>Human Systems Integration/Sociotechnical factors</i>
12:55	13:20	0:25	6 V's and 3 T's of Systems Engineering David Long (Vitech)	Systems Engineering, Development and Testing of an Unmanned Ground Vehicle Guy Morris (Nova Systems)	<b>PANEL</b> <b>HSI/Socio-technical factors: Grace Kennedy (UOW)</b> P.Salmon (USC), J.Dugar (TUSS), J.Bhalla (JBES)
13:20	13:45	0:25		The System of Systems Approach Behind the Technology Transformation of Routine Coral Reef Monitoring for Scientific Research Across Tropical Australia. M. Olsen (AIMS)	
13:45	14:10	0:25	A Systems Thinking Approach to Systems Engineering Workforce Planning Trent Dennis (TfNSW)	A Competency Framework for Defence Test and Evaluation Organisations Obaid Ur Rehman (Defence)	Modelling the Human Factor Daniel Simmons (Acmena)
14:10	14:35	0:25	Concept-Stage Simulation for Assessment of Capability Effectiveness Predictions Duane Jusaitis (Shoal Group Pty Ltd)	<b>PANEL</b> <b>Test &amp; Evaluation</b> [tbc]	Exploring the Modelling of Organisational Culture within Holistic Enterprise Systems Transformation. Grace Kennedy (University Of Wollongong)
14:35	15:00	0:25	Enhancing Engineering Business through Benchmarking Vernon Ireland (University of Adelaide)		Creating sustainable Socio-Technical system Ariunbold Khuyag (Tus Solution Llc)
15:00	15:20	0:20	Afternoon Tea		
			<i>Systems Engineering in the life cycle</i>	<i>Systems Engineering Tools, Techniques, Modelling &amp; Simulation</i>	<i>Human Systems Integration/Sociotechnical factors</i>
15:20	15:45	0:25	<b>Maestria - A New Tool to Support the Building and Sharing of an IVVQ Strategy</b> Steven Spencer (Thales)	Developing a Joint Analytical Framework for MODSIM-based decision support John Furness (Shoal Group Pty Ltd)	Customising human factors information for better Australian Army soldier equipment design and acquisition. Sheena Care (Dst Group)
15:45	16:10	0:25		Object-Oriented Systems Engineering for Infrastructure Projects Ian Brace (Shoal Group Pty Ltd)	Human systems modelling throughout the lifecycle Miranda Cornelissen (Acmena)
16:10	16:35	0:25		Systems Engineering 101 Workshop	Diagnosing INCOSE as a social system using TUS Sustainable social system model. Bayartsengel Batsaikhan (Tus Solution)
16:35	17:15	0:40	Keynote: Maritime T&E and Tactics Development – RAN's New Approach David Frost (Captain RAN, Director Maritime Warfare Centre)		
17:15	18:15	1:00	SESA AGM		
18:30	19:00	0:30	Pre-Dinner Networking		
19:00	21:30	2:30	Gala Dinner		

Exhibition

Tuesday Themes:

- Systems Engineering in the life cycle*
- System Thinking and application
  - Product Line Engineering
  - Project and Portfolio SE processes
  - Management & Control
  - Engineering team education, training and mgmt
  - Definition, Acquisition and Realisation
  - Supply chain aspects
  - Deployment, Operations and Support
  - Sustainment & Obsolescence Management
  - Technology insertion / decommissioning
  - Transformation of Large-scale Systems
  - Managing Complexity
  - Sensors Integration & Application
  - Sensing and decision making in complex systems
  - Large-Scale Systems Integration

- Systems Engineering Tools, Techniques*
- Digital Engineering
  - Modelling, Simulation & Analysis and MBSE
  - Specialty Engineering and Logistics Analysis
  - System Trade-off Studies and Decision Analysis
  - Model-Based Systems Engineering (MBSSE)
  - Human Factors Engineering
  - Systems Integration and Interface Management
  - Verification and Validation (V&V)
  - Test and Evaluation (T&E)
  - Certification & Technical Governance

- Systems Architecture, needs, requirements & technologies*
- System Architecting and Specialty Engineering Integration
  - Human Systems Integration
  - Managing complexity, risk and uncertainty
  - Design for Resilience
  - Emergent behaviour and Innovation management
  - Engineering Systems-of-Systems
  - Autonomous Systems, Robotic Systems
  - Energy transition
  - Internet of Things
  - IT/ Data analytics /data warehousing
  - Architecting for -ilities (agility, resilience, sustainability, maintainability, cyber security, etc.)

Wednesday 13 May 2020			
7:00	13:30	0:30	<b>Registration</b> Session chair and conference presenter briefing
7:30	8:30	1:00	<b>Round Table:</b> Systems thinking to address the UN Sustainable Development Goals
8:30	8:35	0:05	Plenary session - Welcome
8:35	9:00	0:25	SESA TD Corner - SESA and SE In Australia ( <i>Jawahar Bhalla, SESA Technical Director</i> )
9:00	9:15	0:15	SEP (CASE Mythbusters) followed by Q&A Session on SESA
9:15	9:55	0:40	<b>Keynote: Five Models are better than one! Many model thinking in Human Factors and System Engineering</b> Prof. Paul Salmon (USC)
9:55	10:15	0:20	Morning tea
<i>Defence Systems (Land, Sea, Air, Space, Cyber)</i>		<i>Critical Infrastructure (Transport, Energy, Water, Comms...)</i>	
9:55	10:20	0:25	<b>Factor Screening using Bayesian Active Learning and Gaussian Process Meta-Modelling</b> Andrew Gill (DST Group)
10:20	10:45	0:25	<b>How Defence's new Land Integration Framework (LIF) will reduce integration risk for capability projects delivering the Land Combat System.</b> Thomas Manley (Downer Defence)
10:45	11:10	0:25	<b>Developing a model-based approach for SoS design of the Australian Defence Force</b> Benton Maxted (Nova Systems)
11:10	11:35	0:25	<b>Assessing Joint Force Integration &amp; Interoperability (I2)</b> Jaci Pratt, DST
11:35	12:00	0:25	<b>Concept Evaluation of Military Robotic and Autonomous Systems – Test and Evaluation Challenges.</b> Eyoel Teffera (DST Group)
12:00	12:45	0:45	Lunch
<i>Defence Systems (Land, Sea, Air, Space, Cyber)</i>		<i>Systems Engineering Tools, Techniques / MBSE</i>	
12:45	13:10	0:25	<b>Right-Sizing the Requirements Effort: A Requirements Tailoring System for New Zealand Defence Capability Projects.</b> Ben Morton (NZ Defence Force)
13:10	13:35	0:25	<b>Autonomous Warrior 18 – Case Study</b> Sarah Cannard (Nova)
13:35	13:55	0:25	<b>PANEL</b> Systems Engineering challenges in Supporting Military Systems: Scott White (Airbus Helicopters)
13:55	14:35	0:25	<b>Lessons Learned and Best Practices for Transitioning from Classical Systems Engineering to Model Based Systems Engineering.</b> Stephen Craig (Boeing Defence Australia)
14:35	14:55	0:20	Afternoon Tea
14:55	15:35	0:40	<b>Keynote: Building trust into the relationship between the customer and contractor – how models help</b> Kathryn Burr (Boeing)
15:35	16:05	0:30	Closing Session

Wednesday Themes:

*Critical Infrastructure:*

- Transportation Systems
- Environmental Systems
- Energy Systems
- Water Systems
- Space and Communication Systems
- Socio-technical Systems
- Resilience and future proofing

*Defence Systems (Land, Sea, Air, Cyber)*

- Capability Planning & Force Design
- Acquisition and Support
- Operational Scenarios
- Training & simulation
- Cyberwarfare
- Logistics Supply & Sustainment
- Land, Sea and Air Platforms
- Mission System Integration
- Support Systems
- Mission Platforms (C2, ISR)
- Contestability
- Wargaming
- Joint Operations

*Health & Medical Systems*

- Public Health / Health care management systems
- Healthcare systems including logistics systems
- Medical Devices