

**DAY ONE - Thursday 27th May 2021**

7:00 AM - 8:00 AM	Virtual Portal Access					
8:05 AM - 8:15 AM	Congress Opening Address & Welcome to Country - <b>Jane MacMaster, Chief Engineer at Engineers Australia</b>					
	<b>Technical Presentations - Concurrent Streams</b>					
Concurrent Sessions I	<b>Systems &amp; Test I</b>	<b>Systems &amp; Test II</b>	<b>Project Controls</b>	<b>RISK I</b>	<b>RISK II</b>	<b>Integrated Project Engineering</b>
	Human Systems and Culture	Governance and Assurance	Capital Projects and Lifecycle	Sustainability and Resilience	Capital Projects and Lifecycle	Technology and Data/Capital Projects and Lifecycle
8:15 AM - 8:40 AM	108: An Overview of Systems Engineering in the Australian Transport Sector <b>Ruben Welschen</b>	52: Putting Unicorns in the Right Paddock: Effective Assurance as an Enabler of Change <b>Jonathan Armstrong</b>	56: Improving the discipline of planning and scheduling infrastructure projects <b>Dave Crosby</b>	4: "Energy Infrastructure Modelling for Sustainability & Resilience": Using the FRAM to Model a Complex System <b>Geoff Hurst</b>	50: Projects - Why leadership & Management are critical in avoiding a repeat of Post GFC mistakes in major infrastructure projects <b>Veno Panicker</b>	6: Knowledge Management challenges in an Alliance-based major project delivery organisation <b>Stephen Howe</b>
8:40 AM - 9:05 AM	81: Reconciling Enterprise Architecture and Systems Engineering <b>Thomas Manley</b>	22: Systems Engineering Professional Certification Standard <b>Ray Hentschel</b>	79: Innovative approach to project controls and reporting for high volume of small scale design portfolio <b>Praema Ranga</b>	5: Protection of Critical Public Infrastructure Assets in the event of a Terrorist Attack with High Explosives <b>Ruwan Weerakoon</b>	32: Risk Management and Systems Leadership for Water Portfolios <b>Laurie Bowman</b>	94: Successes in Project Management and SE Integration <b>William Parkins (Panel)</b>
9:05 AM - 9:30 AM	75: Systems Engineering Education in Australia – Supply and Demand <b>Grace Kennedy</b>	67: Analysis of telecommunications system model for service delivery network sizing <b>Daniel Spencer</b>	#122 Efford Optimisation A new way to make resource/workforce decisions in project based organisations <b>Alex James</b>	55: Maximising investment post COVID-19: Integrating resilience into all aspects of infrastructure. <b>Chris Quin</b>	48: Emergent Behaviour in the Battle Management System (BMS) <b>Aleksander Seizovic</b>	
9:30 AM - 9:55 AM	80: A Criticality Framework for Communications Networks <b>Thomas Manley</b>	20: A modelling approach for integration of systems engineering and program management <b>Mahmoud Efatmaneshnik</b>	39: How To Accelerate Your Leadership Skills & Build A Resilient & High Performing Team <b>Joshua Stone</b>	59: Combining Operational Data with Accounting Data for Complex Endeavours <b>Alastair Paton</b>	17: The Capability Management Process: a Systematic Way into Business Improvement <b>Katharina Gerstmann</b>	14: Multidiscipline Coordination – a Process Towards an Integrated Project <b>Richard Lau</b>
9:55-10:20	<b>Congress Morning Break - Virtual Networking in Meeting Hub &amp; Technology Hub</b>					

Concurrent Sessions II	Systems & Test I	Systems & Test II	Project Controls	RISK I	RISK II	Integrated Project Engineering
10:20 AM - 10:45 AM	101: Architecting for 'Ilities' <b>Peter Bernus</b>	43: Effectively communicating developmental system reliability growth plans and risk to decision-makers <b>Paul Nation</b>	9: Multi-project lifecycle management system <b>Calin Borbell</b>	10: How we built awesome risk software to kill spreadsheets <b>Doug Vincent</b>	111: The swiss cheese model with "Risk Leadership" as the fifth domain in a complex project environment" <b>Santosh Therakam</b>	
10:45 AM - 11:10 AM	46: Using Model Based Systems Engineering (MBSE) techniques to develop an approach for designing a resilient SATCOM system <b>Georgia Castignani</b>	28: RAIDOC - The project management tool used by systems engineers <b>Anthony Afonso</b>	73: Earned Value Management for Integrated Project Performance Measurement <b>Laurie Bowman</b> (Tutorial)	107: International Humanitarian Law for the Australian Defence Industry <b>Derek Rogers</b>	110: High Capacity Electric Public Transport Vehicles: A Brisbane Metro Case Study <b>David Cox</b>	
11:10 AM - 11:35 AM	89: Mapping the Human Systems Integration Perspectives to Systems Resilience in Critical Infrastructure <b>Grace Kennedy</b>	117: Exploring the Role of Hierarchy Structures in Achievement of Sustainable Development Goals <b>Maya Narayan</b>		115: Post-disaster facility resilience: design gaps, traps and failures to deliver building code compliant in line with business continuity requirements <b>Jordan Bartlett</b>	124: Fire Truck Diesel Exhaust Emissions – Risk Identification to Solution implementation – the Fire Brigade experience <b>Kevin Smith</b>	
11:35 AM - 12:00 PM	19: Application of Subjective Complexity for Utilizing Competency Framework for System Engineer Role Assignment <b>Mahmoud Efatmaneshnik</b>	106: The challenges of artificial intelligence and systems engineering <b>Jake Vanderlinde</b>	120: Unpredictable Risk and Building Resilience in Engineering and Construction <b>Tim Rigby</b>	119: A Systems thinking view of Failure <b>Sean Brady</b>	109: An integrated approach to Wellness <b>Janet McCulloch</b>	
12:00 PM - 13:00 PM	<b>Congress Lunch Break - Virtual Networking in Meeting Hub &amp; Technology Hub</b>					
<b>Plenary Presentations &amp; Networking</b> <b>Thursday 27th May 2021:</b> Arrival from 15.30, Plenary Presentations from 16:00 - 18:15, followed by 1 hour Networking All presentations will be delivered virtually and may be attended online as part of your registration or alternatively attend In person to view the presentations streamed into the Engineers Australia Office, QLD - followed by networking						
16:00 - 16:45	<b>Plenary 1 - Our Future World: Megatrends Reshaping Livelihoods and Lifestyles over the coming decades - Stefan Hajkovicz, Senior Principal Scientist - Strategy, Foresight and Decision</b>					
16:45 - 17:30	<b>Plenary 2 - Houston, we have a Problem! The Critical need for Human Factors in the design of Artificial Intelligence - Professor Paul Salmon, Professor of Human Factors and Gemma Reed, Associate Professor, University of Sunshine Coast</b>					
17:30 - 18:15	<b>Plenary 3 - Case studies and lessons learned – Governance to deliver successful business re-engineering projects: Sandra Diethelm, Executive Consultant, IXL Pty</b>					
18:15 PM - 19:15 PM	<b>Virtual Networking Reception - Online Participants</b>					
	<b>In Person Networking Reception</b> <b>Engineers Australia Office, Brisbane - Level 9/340 Adelaide Street, Brisbane City QLD 4000</b>					
19:15 PM	<b>Congress Day 1 Concludes</b>					

**DAY TWO - Friday 28th May 2021**

7:00 AM - 8:00 AM	Virtual Portal Access					
	<b>Technical Presentations - Concurrent Streams</b>					
Concurrent Sessions III	<b>Systems &amp; Test</b>	<b>Systems &amp; Test</b>	<b>Project Controls</b>	<b>RISK</b>	<b>RISK</b>	<b>Integrated Project Engineering</b>
	Technology and Data	Sustainability and Resilience	Technology and Data	Capital Projects and Lifecycle	Sustainability and Resilience	Governance and Assurance
8:15 AM - 8:40 AM	88: Optimization and integration the Hard and soft systems nightmare for chaos avoidance in complexity management. <b>Edward Tooper</b>	Australia's Future Fuels Strategy - Opportunities and Challenges of a Transition to Hydrogen <b>Aurelia Noran</b>	116: Digital Transformation within the Major Transport Infrastructure Authority <b>Cameron Mills</b>	7: Digital Project Twin for Quantitative Cost, Risk and Schedule Assessment of Capital Projects <b>Taylor Burns</b>	78: Assessment of the viability and benefits of using vegetable oil fuels and of more fundamental ways to offset the impending fossil fuel dilemma <b>Ian Thomas</b>	47: Technical success factors for major projects in the oil and industry is a mandatory requirement and how to achieve it <b>Vijay Vijayaraghavan</b>
8:40 AM - 9:05 AM	65: Practical approaches to data integration spanning technical modelling for projects <b>Daniel Spencer</b>	126: Potential for Nuclear Fuels <b>Chris Skinner</b>	118: The role of Engineering Technologist in Systems Engineering <b>Rowan Goyns</b>	112: Risk Engineering in Defence Domains <b>Jennifer Del Mastro</b>	96: Inter-storey 'Drift into (FRL) Failure': Holistic construction compliance failures and future causal scenarios <b>Jordan Bartlett</b>	38: Technical Translators – Engineering Management; a defined and unique skillset for project success <b>Georgina Mahony</b>
9:05 AM - 9:30 AM	41: A Bayesian approach to complex discrete-use system reliability growth planning under delayed or arbitrary corrective actions <b>Paul Nation</b>	123: The Weibel Parsing Analysis recipe for text-driven Model-Based Systems Engineering (MBSE) with Systems Modeling Language (SysML) <b>Dr Darren Kelly</b>	24: Improving the accuracy and speed of project cost and time forecasts with Artificial Intelligence: Theory and Case studies <b>Cuong Quang</b>	104: Developing a Culture of Readiness: How Systems Thinking can support people prepare for Operational Change <b>Adam Tull</b>	34: WWMED – What Would Earth Do? A Regenerative Approach towards a Resilient & Sustainable Future <b>Megan Jones &amp; Mary Casey</b>	12: A System for Tailoring the Requirements Approach for New Zealand Defence Force Capability Projects <b>Ben Morton</b>
	Technology and Data	Sustainability and Resilience	Capital Projects and Lifecycle		Governance and Assurance	
9:30 AM - 9:55 AM	57: Operations Modelling Schemas for In-Service Sustainment <b>Vincent Capizzi/ Bill Wang</b>	23: SESA Resilience Initiative towards a Resilience Framework for Australia as a System <b>Jawahar Bhalla</b> (Panel/Workshop)	125: Cost-Loading a P6 Schedule from a Fixed Bid Contract <b>Michael Lepage</b>	93: Why do we still argue about Definitions of Risk and of Opportunity? <b>Jim Whiting</b>	31: Risk Management and Systems Thinking - The Past, Present and the Future <b>Laurie Bowman, Trish Kerin, Sean Brady, Warren Black, Jane MacMaster</b> (Panel)	
9:55 AM - 10:20 AM	45: Distributed systems discovery for component-based Fault Modes Effect and Criticality (FMECA) analyses: A model based industry case study <b>Jade Chantrell/Brad Spencer</b>		66: A Markov Model for Project Planning Evaluation <b>Mahmoud Efatmaneshnik</b>			

10:20 AM - 10:40 AM	<b>Congress Morning Break - Virtual Networking in Meeting Hub &amp; Technology Hub</b>					
10:40 AM - 11:05 AM	53: Accounting for downwash effect on helicopter landing sites on multi-storey hospitals <b>Mario Wilsch &amp; Joe Walsh</b>	114: Building Resilience into Healthcare through Systems Engineering <b>Andrew Madry (Panel)</b>		26: Balancing cost, risk and performance in asset management <b>Monique Beeles (Panel)</b>	97: 50 years on has the 1970 west gate bridge collapse been properly explained <b>Ian Thomas</b>	
11:05 AM - 11:30 AM	42: A comparison of empirical Bayes hyperparameter approaches for discrete-use system initial reliability estimation <b>Paul Nation</b>		113: A journey to Project Controls Maturity - A Case Study <b>Jonathan Jacobs</b>		18: Application of Possibility Theory to Systems Engineering Risk Management <b>Mahmoud Efatmaneshnik</b>	
	Human Systems and Culture	Sustainability and Resilience	Capital Projects and Lifecycle	Human Systems and Culture		
11:30 AM - 11:55 AM	87: Human Systems Integration and Autonomy <b>Grace Kennedy (Panel)</b>	92: Resiliency and Critical Communications Networks <b>Thomas Manley (Panel)</b>	33: Integrated Project Cost Management <b>Laurie Bowman (Tutorial)</b>	25: Ensuring safe design and operations in a flexible and remote working world: Practical Tips <b>Jennifer Del Mastro (Panel)</b>	60: Managing support during the inevitable transition from deterministic systems to non-deterministic complex systems <b>Alex Parkin (Panel)</b>	
11:55 AM - 12:20 PM						
12:20 PM - 13:20 PM	<b>Congress Lunch Break - Virtual Networking in Meeting Hub &amp; Technology Hub</b>					
<b>Plenary Presentations &amp; Networking</b> <b>Friday 28th May 2021:</b> Arrival from 15.30, Plenary Presentations from 16:00 - 18:15, followed by 1 hour Networking All presentations will be delivered virtually and may be attended online as part of your registration or alternatively attend In person to view the presentations streamed into the Engineers Australia Office, NSW - followed by networking						
16:00 PM - 16:45 PM	<b>Plenary 4 - Managing Capital Projects for Profit, Performance and the Planet - Mark Betts, Director Project Management &amp; Continuous Improvement, Level Crossing Removal Authority</b>					
16:45 PM - 17:30 PM	<b>Plenary 5 - Creating a Resilient and Sustainable Future - John Blackburn AO</b>					
17:30 PM - 18:15 PM	<b>Plenary 6 - Keynote presentation on Pathways Through Complex Systems Solutions - Kerry Lunney FIEAust CPEng NER, Chief Engineer, Thales Australia</b>					
18:15 PM - 19:15 PM	<b>Virtual Networking Reception - Online Participants</b> <b>In Person Networking Reception</b> <b>Engineers Australia Office, Sydney, Mezzanine Level, 44 Market Street Sydney NSW 2000</b>					
19:15 PM	<b>Congress Concludes</b>					
<b>Congress Themes</b>						
<b>Theme 1</b> Capital Projects and Lifecycle	<b>Theme 2</b> Sustainability & Resilience	<b>Theme 3</b> Technology and Data	<b>Theme 4</b> Human Systems and Culture	<b>Theme 5</b> Governance & Assurance		