WCEAM/VETOMAC 2017 DRAFT PROGRAM

(Subject to Change)

Wednesday 2 August 2017

Time	Program
8.00am	**Registration Opens** **Boulevard Level, Brisbane Convention & Exhibition Centre**
9.00am	**Opening** CHAIR: Joseph Mathew, Asset Institute, Australia **Boulevard Auditorium** **Welcome Addresses** **Adjunct Professor Joseph Mathew, Congress Chair, Asset Institute, Australia** **Professor Joe Amadi-Echendu, ISEAM Chair, University of Pretoria, South Africa** **Professor C W Lim, City University of Hong Kong, China (VETOMAC)** **Professor John Bell, Acting Executive Dean, Science & Engineering Faculty, Queensland University of Technology** **Opening Address: The Lord Mayor Graham Quirk, Lord Mayor of Brisbane, Australia**
9.45am	**Opening Address by Platinum Sponsor** **Delivering Operational Effectiveness in Asset Intensive Industries through Asset Intelligence** Darren Covington, Mainpac, Australia
10.10am	**Plenary 1** **Sponsored by Mainpac** CHAIR: Darren Covington, Mainpac, Australia **Intelligent Integration and Interoperability of Critical Infrastructure and Assets** Alan Johnston, MIMOSA (Machinery Information Management Open Systems Architecture), & Standards Leadership Council, USA | Jess B. Kozman, Professional Petroleum Data Management (PPDM) Association, Singapore **Boulevard Auditorium**
10.45am - 11.15am	**Morning Tea & Exhibition** **Boulevard Concourse**

CONCURRENT SESSION 1 – Wednesday

Time	SESSION 1.1	SESSION 1.2	SESSION 1.3	SESSION 1.4
	Building Information Modelling **Sponsored by Queensland University of Technology**	**Sustainability & Climate Change Adaptation of Infrastructure 1**	**Intelligent & Automatic Fault Diagnosis & Prognosis 1**	**Reliability Modelling & Maintenance Decision Support 1**
	CHAIR: Robin Drogemuller, Queensland University of Technology, Australia	CO-CHAIRS: Dr Fahim Tonmoy and Dr David Rissik, NCCARF, Australia	CHAIR: Peter W. Tse, City University of Hong Kong, China	CHAIR: Lin Ma, Queensland University of Technology, Australia
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
11.15am 11.30am	**BIM, the Next Steps for Queensland, is it that Simple?** LEAD SPEAKER: Andrew Curthoys, Department of Infrastructure, Local Government and Planning, Queensland, Australia	**Adaptive Capacity of Australian infrastructure to future climate change risks** LEAD SPEAKER: David Singleton, Infrastructure Sustainability Council of Australia (ISCA), Australia	**A Smart and Big-Data System for Predicting the Remaining Useful Life of Real Industrial Machines** LEAD SPEAKER: Peter W. Tse, City University of Hong Kong, China	**Overhaul decision of repairable systems based on the power-law model fitted by a weighted parameter estimation method** LEAD SPEAKER: Renyan Jiang, Changsha University of Science and Technology, Changsha, China
11.45am	**Innovation in BIM for Emergency Management and Response in High Risk Environments** Peter W Beven, Queensland University of Technology, Senior Advisor, Queensland Health, Australia	**Climate Change Impacts for Asset Managers** Adjunct Professor David Hood, Long Future Foundation, Australia	**The feature analysis for fault diagnosis of rotating machine** Hyeontak Yu, Byunghyun Ahn, Jungpil Noh, Hyomin Jeong and Byeongkeun Choi, GyeongSang National University,Republic of Korea	**Statistical analysis for wood poles using sound wood measurements data** Allen Tam, Iris Kwan and Mark Halton, Relken Engineering, Australia
12.00pm	**BIM in FM: The Real Deal** Malcolm Foort, ZUUSE, Australia		**Centrifugal Compressor Diagnosis Using Kernel PCA and Fuzzy Clustering** X. Liang, F. Duan, D. Mba, B. Ian, Cranfield University, UK	
12.15pm	**Localization of Bluetooth Smart Equipped Assets Based on Building Information Models** Mahtab Nezhadasl, Curtin University, Australia	**Climate Change and Coastal Transport Infrastructure – How Do We Keep Australia Moving?** Greg Fisk, BMT WBM, Australia Fahim Tonmoy and David Rissik, NCCARF, Australia	**Automated and Predictive Monitoring and Diagnosis in the Energy and Natural Resources Sector** Yvonne Power, IMPower Technologies, Australia	**Enablers and barriers of smart data-based asset management services in industrial business networks** Toni Ahonen, Jyri Hanski, Helena Kortelainen, Teuvo Uusitalo, Matti Hyvärinen, Henri Vainio, Susanna Kunttu and Kari Koskinen, VTT Technical Research Centre, Finland
12.30pm	**Applying the COBie approach to Linear Infrastructure** Robin Drogemuller, Queensland University of Technology, Australia		**MBVI (Model-based Voltage and Current) systems: a tool for optimising Asset Management Strategies? What they do, how they work and some case study examples** Geoff Walker, Artesis LLP, UK	

Time	Program
12.45pm - 1.45pm	**Lunch & Exhibition** **Boulevard Concourse**
1.45pm	**Keynote** **Engineering Asset Management: Understanding the Management Element** Professor Kerry Brown, Edith Cowan University, Australia *CHAIR: Joe Amadi-Echendu, University of Pretoria, South Africa* **Boulevard Auditorium**

CONCURRENT SESSION 2 – Wednesday

Time	SESSION 2.1	SESSION 2.2	SESSION 2.3	SESSION 2.4
	Governance & Planning 1	**Sustainability & Climate Change Adaptation of Infrastructure 2**	**Intelligent & Automatic Fault Diagnosis & Prognosis 2**	**Reliability Modelling & Maintenance Decision Support 2**
	CHAIR: Kerry Brown, Edith Cowan University	CO-CHAIRS: Dr Fahim Tonmoy and Dr David Rissik, NCCARF, Australia	CHAIR: Peter W. Tse, City University of Hong Kong	CHAIR: Ming Zuo, University of Alberta, Canada
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
2.30pm	**The role of the board in Asset Management: An integrated approach to Governance** LEAD SPEAKER: Monique Beedles, Teak Yew, Australia	**Seawalls for coastal protection and climate change adaptation: A case study from the Gold Coast** LEAD SPEAKER: Rodger Tomlinson and Leslie Angus Jackson, Griffith Centre for Coastal Management, Australia	**Creating Smart Ways of Using Smart Technologies for Asset Management: Challenges, Opportunities, and Future Trends** LEAD SPEAKER: Xiangyu Wang, Curtin University, Australia	**Coordination between Maintenance and Production by means of Auction Mechanisms for Increased Efficiency of Production Systems** Günther Prof. Dr.Ing. Schuh and Michael Kurz, FIR e. V. an der RWTH Aachen / Institute for Industrial Management, Germany
2.45pm				**Integrated modelling and decision support of continuous production systems** Samuel Patterson, Paul Hyland and Talara Berry, Queensland University of Technology & Synengco, Australia
3.00pm	**PANEL SESSION: Better than Best Practice SAMP** Strategic Asset Management Plans are at the forefront of these changes as they signal a shift from simply planning for asset acquisition and ongoing maintenance to a strategic view about determining the purpose and objectives of assets to support the objectives of the organisation. However, it is often unclear how to formulate and develop SAMPs from a strategic perspective and to generate a long-term perspective for assets and service delivery through those assets. This Panel will discuss next generation examples and latest thinking about SAMPs. **CONVENOR:** Kerry Brown, ECU, Australia **PANELISTS** Monique Beedles, Teak Yew, Australia Alan Rosser, Queensland Rail, Australia Christine Ip, Queensland Treasury Corporation, Australia	**Adapting transport infrastructure to climate change: Who bears the risk and responsibility?** Samantha Hayes, Griffith University, Australia	**Indirect ship hull condition monitoring using speed and fuel consumption analysis** Roar Adland, Pierre Cariou, Haiying Jia and Francois-Charles Wolff, Norwegian School of Economics (NHH), Norway	**Joint Optimization of Preventive Maintenance and Spare Parts Logistics for Multi-echelon Geographically Dispersed Systems** Keren Wang and Dragan Djurdjanovic, University of Texas at Austin, USA
3.15pm			**Development of autonomous hammering test method for deteriorated concrete structures based on artificial intelligence and 3D positioning system** Katsufumi Hashimoto, Tomoki Shiotani, Takahiro Nishida, Hideo Kumagai and Katsuhiko Kokubo, Kyoto University, Japan	**Assess the Inter-related Impacts of Carbon Taxation, Electric Power Costs and Solar PV Installation Using System Dynamics Modeling** Amy Trappey and Charles Trappey, National Tsing Hua University, Taiwan
3.30pm		**Flood exposure and social vulnerability for prioritizing local adaptation of urban storm water systems** Tanvir Ahmed, University of Sydney, Australia	**Features analysis of vibration signal according to crack and leakage of heat exchanger tube** Jongmyeong Lee, Hyeontak Yu, Jungpil Noh, Hyomin Jeong and Byeongkeun Choi, GyeongSang National University, Republic of Korea	**Decision-Making in Asset Management under Regulatory Constraints** Dragan Komljenovic, Georges Abdul-Nour and Jean-François Boudreau, Hydro Quebec Research Institute, Canada.
3.45pm				

Time	Program
4.00pm - 4.30pm	**Afternoon Tea** **Boulevard Concourse**

CONCURRENT SESSION 3 – Wednesday

Time	SESSION 3.1	SESSION 3.2	SESSION 3.3	SESSION 3.4
	Governance & Planning 2	**Sustainability & Climate Change Adaptation of Infrastructure 3**	Video Conferencing Presentations	**Reliability Modelling & Maintenance Decision Support 3**
	CHAIR: Kerry Brown, Edith Cowan University, Australia	CO-CHAIRS: Dr Fahim Tonmoy and Dr David Rissik, NCCARF, Australia	CHAIR: Joseph Mathew, Asset Institute, Australia	CHAIR: Ming Zuo, University of Alberta, Canada
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
4.30pm	**E-trademark registration services to improve process performance and prevent trademark infringement** LEAD SPEAKER: Amy Trappey, National Chiao Tung University, Taiwan	**Climate change adaptation of infrastructure and CoastAdapt tool** LEAD SPEAKERS: Fahim Tonmoy and David Rissik, NCCARF, Australia	**Novel monitoring of offshore wind turbines supporting structure using acoustic emission technique** Ángela Angulo, Tat-Hean Gan, Jamil Kanfoud and Slim Soua,TWI Ltd, UK	**Predictive Models of Maintenance Needs for Power Distribution Wood Poles Using Machine Learning – A Conceptual Case Study** Alexandre Cesa, Carla Boehl and Kecheng Shen, Curtin University, Australia
4.45pm			**Ultrasonic Phased Array on Time-of-Flight Diffraction for Non-Destructive Testing via Numerical Modelling** Tat-Hean Gan, Channa Nageswaran and Mario Kostan, Brunel University London, UK	
5.00pm	**An approach to quantify value provided by an engineered asset according to the ISO 5500x series of standards** Vicente González-Prida Díaz, Adolfo Crespo Márquez, Antonio Guillén, Juan Francisco Gómez Fernández and Antonio De La Fuente, University of Seville, Spain	**PANEL SESSION** **Increasing climate resiliency of Australia's infrastructure sector: Challenges and Opportunities** **CONVENOR:** Fahim Tonmoy, NCCARF **PANELISTS** David Singleton, Infrastructure Sustainability Council of Australia (ISCA), Australia Rodger Tomlinson, Griffith Centre for Coastal Management, Australia David Rissik, NCCARF, Australia Greg Fisk, NCCARF, Australia	**Ship Accident cause and consequence analysis using Bayesian Belief Networks** Tat-Hean Gan and Subin Kumaran, Brunel University London, UK	**Modelling the Effect of Time-dependent Covariates on the Failure Rate of Wind Turbines** Feixiang Wu, Yifan Zhou and Jingjing Liu, Southeast University, China
5.15pm	**Investments Portfolio Optimal Planning** Jerome Lonchampt, EDF, France		**Reciprocating compressor valve leakage detection under varying load conditions** Panagiotis Loukopoulos, George Zolkiewski, Ian Bennett, Suresh Sampath, Pericles Pilidis, Fang Duan and David Mba, Cranfield University, UK	
5.30pm	**Value of Asset Management: Investigation into its determination and measurement** Ernst Krauss and Carla Boehl, WA School of Mines, Curtin University, Australia			**Developing a new dTIMS predictive model to reduce long term routine maintenance** Phillipa O'Shea, Hui Chen and Hamish Featonby, Downer New Zealand, New Zealand
5.45pm	**Tools to support value for money asset investment outcomes** Lloyd Arnott, Aurecon, Australia			

Time	Program
6.00pm - 8.00pm	**Welcome Reception** **Boulevard Concourse, Brisbane Convention & Exhibition Centre**
8:00pm - 9:00 pm	**ISEAM Members' Briefing**

Thursday 3 August 2017

Time	Program
8.30am	**Registration Opens** **Boulevard Level, Brisbane Convention & Exhibition Centre**
9.00am	**Keynote** **The 4th Industry Revolution: Reflecting on the Opportunities, Barriers and Risk for Asset Management** Professor Marco Macchi, Politecnico di Milano, Italy *CHAIR: Helena Kortelainen, VTT Technical Research Centre, Finland* **Boulevard Auditorium**

CONCURRENT SESSION 4 – Thursday

Time	SESSION 4.1	SESSION 4.2	SESSION 4.3	SESSION 4.4
	Public Assets	**Maintenance Strategies**	**NDT & AE in Condition Monitoring 1** **Sponsored by NMEMS**	**WORKSHOP: Long Future Sustainability for Asset Managers**
	CHAIR: David Edgerton, APV Valuers and Asset Management, Australia	CHAIR: Moray Kidd, The University of Manchester, UK	CHAIR: Andy C.C. Tan, Universiti Teknologi Abdul Rahman, Malaysia	**FACILITATORS:** David Hood & Guy Lane, Long Future Foundation, Australia
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
9.45am	**Insights into Queensland's Public Assets** LEAD SPEAKER: Patrick Flemming, Queensland Audit Office (QAO), Australia	**Maintenance Strategies for Next Generation Industry** LEAD SPEAKER: Moray Kidd, The University of Manchester, UK	**Advanced NDT contributing performance evaluation of civil structures** LEAD SPEAKER:Tomoki Shiotani, Kyoto University, Japan CO-AUTHORS: Takahiro Nishida, Katsufumi Hashimoto	ABSTRACT: Long Future Sustainability is a short intensive workshop that seeks to redefine sustainability in the light of current threats to life on Earth. It will empower Asset Managers with knowledge, passion and drive to deliver better outcomes that not only assist you in your business role but help transform society to a better world that we all deserve. The workshop consists of three parts. Each part contains short presentations, interactive participant activities, videos, and some unique audio/visual content and music. Whether you are new to the conversation about sustainability, or not, this workshop has content that many people have never considered part of the dialogue about sustainability. Participating in Long Future Sustainability will help you: - Identify hidden and future risks to your organisation; - Learn about exciting new business opportunities; - See new frameworks to apply to your products & services; - See exciting – and sometimes scary – new ideas to share with collegues; and - Gain new knowledge, passion and drive to contribute to a Long Future for life on Earth Attendees will come away feeling that the world suddenly makes sense, confident that they have an edge over their competitors, and more than ever able to see the elephants in their own Board rooms.
10.15am	**Sustaining public assets for local communities – the role of innovation and partnerships** LEAD SPEAKER: Roland McMillan, Local Government Association of Queensland, Australia	**Maintenance Footprints** Phillipa O'Shea, Downer, New Zealand	**The design of a novel line-array type of laser source for non-contacted guided waves to inspect the integrity of plates** Peter W. Tse and Jingming Chen, City University of Hong Kong	
10.30am		**NextGen Forward Works Programme Development and Management** Phillipa O'Shea, Downer, New Zealand	**Novel nondestructive technique of internal deterioration in concrete deck with elastic wave approaches** Kazuo Watabe, Hidefumi Takamine, Takahiro Nishida and Tomoki Shiotani, Toshiba Corp., Japan	
10.45am	**Combining technologies to improve AM outcomes** Abe Nezamian, Aurecon, Australia	**Partners in maintenance – benefits and barriers in using partnering-based maintenance contracts** Anders Ingwald and Mirka Kans, Linnaeus University, Sweden	**Evaluation of condition and damage in reinforced concrete by elastic wave method** Takeshi Watanabe, Hayato Fukutomi, Kohei Nishiyama, Akari Suzuki and Chikanori Hashiimoto, Tokushima University, Japan	
11.00am	**Land Bank for National Strategic Projects in Indonesia** Rahayu Puspasari, Ministry of Finance, Republic of Indonesia	**Configuration Management – Why Asset Management can't do without it** Greg Wilcock and Peter Knights, University of Queensland, Australia	**Quantification of valve severity in reciprocating compressor by using acoustic emission technique** Hoi-Yin Sim, Rahizar Ramli, Ahmad-Saifizul Abdullah and Ming-Foong Soong, University of Malaya, Malaysia	

Time	Program
11.15am - 11.45am	**Morning Tea & Exhibition** **Sponsored by K2Fly** **Boulevard Concourse**

CONCURRENT SESSION 5 – Thursday

Time	SESSION 5.1	SESSION 5.2	SESSION 5.3	SESSION 5.4
	Sustainable Property Assets	**Technology & Management – Smart maintenance / Digitalization 1**	**NDT & AE in Condition Monitoring 2**	**WORKSHOP: Evaluating Data Management Maturity for Engineering Assets**
	CHAIR: Tony Brasier, PRDnationwide, Australia	CHAIR: Marco Macchi, Politecnico di Milano, Italy	CHAIR: Andy C.C. Tan, Universiti Tunku Abdul Rahman, Malaysia	**FACILITATOR:** Jess B. Kozman, Professional Petroleum Data Management (PPDM) Association, Singapore
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
11.45am	**Increasing Awareness and Adoption of Sustainability Features and Considerations in the Property Industry** LEAD SPEAKER: Dr Diaswati Mardiasmo, PRDnationwide, Australia	**Deep Learning Paradigm for Asset Management** LEAD SPEAKER: Nalinaksh Vyas, Indian Institute of Technology Kanpur & Technology Mission for Indian Railways, India	**Acoustic Emission technique for monitoring of common faults in diesel engines** Andy C.C. Tan, University Tunku Abdul Rahman	**PREAMBLE:** As asset-intensive industries recognize engineering asset data from critical infrastructure and facilities as a corporate asset, many find themselves unprepared to support projects that manage engineering asset data to support business intelligence or analytics. The goal of this workshop is to understand the elements of asset management capability maturity that are important in industries with a focus on efficient and safe operations. **MOTIVATION:** The workshop builds on work done at the Asset Institute at the Queensland University of Technology to develop a cross-industry Asset Management Capability Maturity Model (AMCaMM), and applies survey and benchmarking techniques developed for analyzing information management capability and complexity in other asset-intensive industries over the last two decades. Participants will evaluate their own organization's capability maturity for the management of engineering asset data management, and the workshop facilitator will then lead an interactive workshop to learn how that evaluation can be used to benchmark against other organizations and industries, to select and define quick win projects for improving capability, to identify the best growth strategies for utilizing that data in support of business intelligence and analytics, and to find correlations with financial performance metrics that demonstrate the value of efficiently managed engineering asset data.
12.00pm			**Avoidance of Generator outage by vibration monitoring** R.S. Maurya, NTPC Ltd, India	
12.15pm	**A Novel Approach to Sensor-less Daylight Harvesting in Commercial Office Buildings** Brenden Harris, Fredon, Australia	**From asset provider to knowledge company - transformation in the digital era** Helena Kortelainen, Jyri Hanski and Ari Happonen, VTT Technical Research Centre of Finland	**Efficient Evaluation of Internal Concrete Damage of Steel Plate-Bonded RC Slabs** Norihiko Ogura, CORE Institute of Technology Corp. Hitoshi Yatsumoto, Hanshin Expressway Company Ltd. Takahiro Nishida and Tomoki Shiotani, Kyoto University	
12.30pm	**Sustainable Housing Toolkit** Connie Susilawati, Wendy Miller, Queensland University of Technology and Asti Mardiasmo, PRD Nationwide, Australia	**Maintenance, Repair and Overhaul Supply System Integrated Planning at Roy Hill** Agata Guzek, Indrasen Naidoo and Carla Boehl, Maintenance, Roy Hill, Australia	**Feature analysis of ultrasound signal for diagnosis** Jungpil Noh, Byunghyun Ahn, Donghee Park, Hyojung Kim and Byeongkeun Choi, Gyeongsang National University, Republic of Korea	
12.45pm	**Employee engagement culture in green buildings: The role of managers in managing human assets to drive financial outcomes** Subha Parida and Kerry Brown, Edith Cowan University, Australia	**Data Quality in Asset Management – Creating and Maintaining a Foundation for data analytics** Allen Tam and Iris Kwan, Relken Engineering, Australia	**Bearing Defect Detection using Envelope Extraction for Dimension Reduction** Fang Duan, Michael Corsar, Linghao Zhou and David Mba	
1.00pm	**Improving Property Practitioners' Involvement in Information Flow of Sustainability Features of Residential Property** Shi Yee Wong, Connie Susilawati, Wendy Miller, Queensland University of Technology and Asti Mardiasmo, PRD Nationwide, Australia	**Predictive Maintenance is an integral part of Asset Life Cycle Maintenance Model** Md Mahdi Hassan, Carla Boehl and Mahinda Kuruppu, Western Australian School of Mines, Curtin University, Australia		

Time	Program
1.15pm - 2.15pm	**Lunch & Exhibition** **Sponsored by Schneider Electric / Fredon** **Boulevard Concourse**
2.15pm	**Keynote** **Asset Management Through Life Estimation** Professor Romuald Rzadkowski, Airforce Institute of Technology, Poland *CHAIR: Chee Wah Lim, City University of Hong Kong, China* **Boulevard Auditorium**

CONCURRENT SESSION 6 – Thursday

Time	SESSION 6.1	SESSION 6.2	SESSION 6.3	SESSION 6.4
	Energy Assets 1 **Sponsored by Synengco**	**Technology & Management – Smart maintenance / Digitalization 2**	**Condition Monitoring of Machine Elements 1**	**WORKSHOP: Recognition of Engineering Asset Management Programmes at Higher Educational Institutions**
	CHAIR: Don Sands, Synengco, Australia	CHAIR: Nalinaksh Vyas, Indian Institute of Technology Kanpur & Technology Mission for Indian Railways, India	CHAIR: Wenyi Wang, DST Group, Australia	CHAIR: Joe Amadi-Echendu, University of Pretoria, South Africa
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
3.00pm	**Managing Electricity Assets in the 21st Century-Revolution Not Evolution** LEAD SPEAKER: Stephen Saladine, Generator Property Management & Asset Institute, Australia	**Successful Organisational Development of Asset Management Organisations** Jasper Coetzee and Solly Nkosi, University of Pretoria, South Africa	**Use of cyclostationarity to detect changes in gear surface roughness using vibration measurements** Xihao Zhang, Wade A. Smith, Pietro Borghesani, Zhongxiao Peng and Robert B. Randall, University of New South Wales, Australia	PREAMBLE: The International Society for Engineering Asset Management (ISEAM www.iseam.org) is a not-for-economic-profit organisation with a primary objective to "pursue charitable purposes, in particular the advancement of science and the advancement of education with a focus in the specific area of scientific knowledge known as integrated engineering asset management". ISEAM is "...dedicated to the development and recognition of Engineering Asset Management (EAM) as an integrated and important body of scientific knowledge through "...liaising with national and international bodies to provide a global approach to" EAM. It is in this regard that ISEAM organises the WCEAM series, and particularly this 12th edition in conjunction with 13th VETOMAC 2017. This is the second instance of the workshop, and will include a presentation of the results of the survey conducted during the first workshop held in 2016. MOTIVATION: Engineering asset management encompasses all types of engineered assets including built environment, infrastructure, plant, equipment, hardware systems and components. This workshop will provide an opportunity to present and discuss ISEAM's ongoing initiative to recognise academic programs at higher educational institutions (HEI's). EAM covers a very wide multidisciplinary scope, thus, the key question is "what constitutes EAM body of knowledge (EAMBoK)?" ISEAM's recognition, rather than statutory accreditation, has two fundamental aims: - To provide assurance that "asset management" academic programs at HEIs address EAM body of knowledge; - To encourage pedagogical and structured development of educational curricula, as well as research and training programmes that advance the EAM body of knowledge.
3.15pm			**Extracting the characteristic frequency of the weak fault signal of blade crack by using the underdetermined blind source separation algorithm based on SCA** Hongkun Li, Changbo He and Xinwei Zhao, Dalian University of Technology, China	
3.30pm	**Being Certain in Tomorrow's Uncertainty** Ben Hayden, Stanwell, Australia	**Forecast Model for Optimization of the Massive Forming Machine OEE** Markus Ecker and Markus Hellfeier, SMS group GmbH, Germany	**Research on the Effect of Meshing Impact on Noise Radiation in Planetary Gear Transmission** Bau Heyun, Zhu Rupeng, Dai Lin, Li Fengbo, Nanjing University of Aeronautics and Astronautics, China	
3.45pm	**Analysing an Industrial Safety Process through Process Mining: A Case Study** Anastasiia Pika, Arthur H.M. Ter Hofstede, Robert K. Perrons, Georg Grossmann, Markus Stumptner and Jim Cooley, Queensland University of Technology, Australia	**Bridge Management Integrating Big Data of Structural Health Monitoring** Yunxia Xia , Chunwei Zhang, Qingdao University of Technology, China	**Influence of tooth surface friction on dynamic transmission error of split torque transmission system** G.H. Jin, H.Y. Yang, R.P. Zhu, S.M. Li, Nanjing University of Aeronautics and Astronautics, China	
4.00pm	**Engineering Asset Management for various power generations: common concepts and specificities** Jerome Lonchampt, EDF, France	**A Data-driven Decision Model: A Case on Drawworks in Offshore Oil & Gas Industry** Pengyu Zhu, University of Stavanger, Norway	**A modified sideband energy ratio for fault detection of planetary gearboxes** Mian Zhang, Dongdong Wei, Kesheng Wang and Ming J Zuo, University of Electronic Science and Technology, China	
4.15pm	**Five Future-Proof Steps to Drive Relaibility with IIoT** Murray Cox, Emerson Automation Solutions, Australia/New Zealand	**Method to determine internal leakage of aircraft's hydraulic servo** Jouko Laitinen and Kari Koskinen, Tampere University of Technology, Finland	**Automated bearing fault diagnostics with cost-effective vibration sensor** Agusmian Partogi Ompusunggu, Bovic Kilundu Y'Ebondo, Ted Ooijevaar and Steven Devos, Flanders Make, Belgium	

Time	Program
4.30pm - 4.45pm	**Afternoon Tea** **Boulevard Concourse**

CONCURRENT SESSION 7 – Thursday

Time	SESSION 7.1	SESSION 7.2	SESSION 7.3	SESSION 7.4
	Energy Assets 2	**Technology & Management – Smart maintenance / Digitalization 3** **Sponsored by Redeye**	**Condition Monitoring of Machine Elements 2**	**Education & Training**
	CHAIR: Don Sands, Synengco, Australia	CHAIR: Ype Wijnia, AssetResolutions BV, The Netherlands	CHAIR: Robert B. Randall, University of New South Wales, Australia	CHAIR: Belle Upadhyaya, University of Tennessee, Knoxville, USA
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
4.45pm	**Enterprise Risk Profiling using Asset Transaction History** Robin Platfoot, Covaris, Australia	**Digital Transformation of Engineering Technical Reference Material for Complex Asset Owners** Michael Carter, Redeye	**Acoustic signature based early fault detection in rolling element bearings** Amir Najafi Amin, Kris McKee, Ilyas Mazhar, Arne Bredin, Ben Mullins and Ian Howard, Curtin University, Australia	**Do we know we are competent? A controversial question for asset managers and their teams** LEAD SPEAKER: Steve Pudney, Intrinsic Engineers, Australia
5.00pm	**VME a tool for risk informed engineering asset management** Jerome Lonchampt, EDF, France		**Condition monitoring of rotating machinery with Acoustic Emission: a British-Australian collaboration** Davide Crivelli, Simon Hutt, Alastair Clarke, Pietro Borghesani, Zhongxiao Peng and Robert Randall, Cardiff School of Engineering, Wales	
5.15pm	**Managing Assets the Digital Way - Eye from Above** Sanil C Namboodiripad, Sterlite Power, India	**Assessing Total Cost of Ownership: Effective asset management along the supply chain** Amir Noorbakhsh, Carla Boehl and Kerry Brown, Western Australian School of Mines, Curtin University, Australia	**Vane Pump Damage Detection via Analysing Synchronously Averaged Vibration Signal** Wenyi Wang, DST Group, Australia	**Competencies Identification and Validation of an Asset Management and Maintenance Postgraduate Program MGA** Edward Johns, Simón Gómez, Tomás Grubessich, Raúl Stegmaier and Fredy Kristjanpoller, Universidad Técnica Federico Santa María, Chile
5.30pm	**Smart Asset Management for Electrical Utilities: Big Data and Future** Swasti R. Khuntia, Delft University of Technology, The Netherlands	**Value-based opportunity management process for asset intensive organization** Manuela Trindade, Nuno Almeida, Matthias Finger and Daniel Ferreira, IST - University of Lisbon, Portugal	**Vibration analysis of machine tools' spindle units** Ali Rastegari, Volvo, Sweden	**Reliability and Maintainability Engineering Program at the University of Tennessee** Belle Upadhyaya, Mingzhou Jin and Wesley Hines, University of Tennessee, Knoxville, USA
5.45pm	**An integrated approach to process safety** Martin Sedgwick and Steven Rigby, Origin Energy, Australia	**Predicting the remaining life of timber bridges** Tane Abbott, Nirdosha Gamage, Sujeeva Setunge and Weena Lokuge, University of Southern Queensland, Australia	**Single-Sensor Identification of Multi-Source Vibration Faults based on Power Spectrum Estimation with Application to Aircraft Engines** Shunming Li, Yu Xin and Xianglian Li, Nanjing University of Aeronautics and Astronautics, China	**An evidence based approach to improving training and development in Critical Infrastructure and Engineering Asset Management Organisations** Jeremy Novak, Centaur Institute, Australia

Time	Program
6.30pm - 10.00pm	**Conference Dinner** **Boulevard Room** **Dinner Speaker: Paul Simshauser, Director-General, Department of Energy and Water Supply, "Energy industry – challenges ahead"** **Announcement of Finalists for 2017 Global Business Challenge** **Best Paper Awards** **ISEAM Lifetime Achievement Award** **VETOMAC 2018 Portugal Presentation** **WCEAM 2018Stavanger, Norway Presentation** **Entertainment: Chris Poulsen Trio**

Friday 4 August 2017

Time	Program
8.30am	**Registration Opens** **Boulevard Level, Brisbane Convention & Exhibition Centre**
9.00am - 9.45am	**Keynote** **Systems Resilience: A Unifying Framework and associated Measures** Professor Loon Ching Tang, Temasek Defence Systems Institute & National University of Singapore *CHAIR: Ming Zuo, University of Alberta, Canada* **Boulevard Auditorium**

CONCURRENT SESSION 8 – Friday

Time	SESSION 8.1	SESSION 8.2	SESSION 8.3	SESSION 8.4
	Water Assets **Sponsored by K2Fly**	**Performance Measurement 1**	**Vibration Engineering 1**	**MINICOURSE: The Open Industrial Interoperability Ecosystem, A Supplier-Neutral Digital Ecosystem, Enabling Critical Infrastructure & Industrial Asset Management**
	CHAIR: Nima Gorjian, SA Water, Australia	CHAIR: Melinda Hodkiewicz, University of Western Australia	CHAIR: Shunming Li, National University of Aeronautics and Astronautics, P R China, & Chee W. Lim, City University of Hong Kong	**COURSE LEADER:** Alan Johnston, MIMOSA
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
9.45am	**Water Asset Management is Fluid and Dynamic - A Utility of the Future Perspective** LEAD SPEAKER: Abel Immaraj, Queensland Urban Utilities, Australia	**Asset Management Performance Measurement Systems – Why they need to evolve and How** LEAD SPEAKER: Rob Schoenmaker, Technical University Delft, The Netherlands CO-AUTHORS: Adolfo Crespo Marquez, Spain, Jayantha Prasanna Liyanage, Norway and Melinda Hodkiewicz, Australia	**Thermo-acoustic radiation of free-standing nano-thin film in viscous fluid** LEAD SPEAKER: Chee W. Lim, City University of Hong Kong	ABSTRACT: The entire industrial revolution was driven by massive gains in efficiency derived from systems which were designed, manufactured, assembled and repaired using interoperable components and spare parts. The Open Industrial Interoperability Ecosystem (OIIE) can provide similar gains in efficiency for industrial Information Technology and Systems associated with the entire life-cycle of complex physical assets and critical infrastructure management, while also enabling industry initiatives such as Industrie4.0 and the Industrial Internet of Things (IIOT). Individual suppliers of complex physical assets and related industrial IT solutions have begun to offer proprietary digital ecosystems, enabling their own systems and components to interoperate with each other with little need for traditional systems integration. The major challenge is that large industrial and public sector plants, facilities and platforms are highly heterogeneous systems of systems. This minicourse discusses how the OIIE addresses these challenges, supporting all key phases of the industrial physical asset life cycle, while enabling mutually beneficial cooperation between major industrial device and equipment manufacturers, IT platform and applications suppliers, EPC firms and asset owner/ operators.
10.15am	**Enhancing Water Treatment Plant Resilience using Reliability Block Diagram Modelling** David Turner, ARMS Reliability, Australia	**Process characteristics and process performance indicators for analysis of process standardization** Achim Kampker, Maximilian Lukas and Philipp Jussen, FIR e.V. an der RWTH Aachen, Germany	**Semi-analytical approach to vibrations induced by oscillator moving on a beam supported by a finite depth foundation** Zuzana Dimitrovová, Universidade Nova De Lisboa, Portugal	
10.30am	**Next Generation Investment Planning & Management: Making Informed Decisions in a Changing World** Dane Boers, ARMS Reliability, Australia	**Combining reliability assessment with maintenance performance analysis using GAMM** Adolfo Crespo Márquez, Antonio Sola Rosique, Antonio J. Guillén López, Asier Erguido and Antonio De La Fuente, University of Seville, Spain	**Unsteady Rotor Blade Forces of 3D Transonic Flow Through Steam Turbine Last Stage and Exhaust Hood with Vibrating Blades** Romuald Rzadkowski, Vitaly Gnesin and Ryszard Szczepanik, Polish Academy of Sciences, Poland	
10.45am	**Quantitative Bowtie Risk Model: An Agile Tool in the Utility Toolkit** Daniel Falzon, SA Water, Australia	**Semiparametric valuation of heterogeneous assets** Roar Adland and Sebastian Köhn, Norwegian School of Economics (NHH), Norway	**A study of the torsional vibration of a 4-cylinder diesel engine crankshaft** Tian Ran Lin and Xue Wen Zhang, Qingdao University of Technology	
11.00am	**An Optimised Energy Saving Model for Pump Scheduling in Wastewater Networks, University of Adelaide** Neda Gorjian Jolfaei, Bo Jin, Christopher Chow, Nima Gorjian and Flavio Bressan, SA Water, Australia	**Modular-based framework of key performance indicators regulating maintenance contracts** Mirka Kans and Anders Ingwald, Linnaeus University, Sweden		

Time	Program
11.15am - 11.45am	**Morning Tea & Exhibition** **Boulevard Concourse**

CONCURRENT SESSION 9 – Friday

Time	SESSION 9.1	SESSION 9.2	SESSION 9.3	SESSION 9.4
	Defence Assets	**Performance Measurement 2**	**Vibration Engineering 2**	**MINICOURSE: Life estimation & exact time of failure of last stage steam turbine blades**
	CHAIR: Ben Kidd, ASC	CHAIR: Melinda Hodkiewicz, University of Western Australia	CHAIR: Professor Tian Ran Lin, Qingdao University of Technology, China	**COURSE LEADER:** Romuald Rzadkowski, Institute of Fluid-Flow Machinery, Polish Academy of Sciences, Poland
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
11.45am	**Optimising availability, capability and affordability across the fleet: a total lifecycle management approach for improving seaworthiness** LEAD SPEAKER: Tobias Lemerande, ASC, Australia	**Developing a Standard Framework for Improving Equipment Design based on Operational Performance Data** Ahmed Khezam, The University of Manchester, UK	**Calculation and Analysis of Anti-Shock of Turbocharger for Marine Diesel Engines** Lei Hu, Jianguo Yang, Mingchao Zheng and Yonghua Yu, College of Energy and Power Engineering, Wuhan University of Technology, China	Despite standards some critical machines fail with very little warning due to excessive alternating stresses and related fatigue damage. This mini-course outlines theories of general fatigue failures particularly from strain-based conditions which originate from transient conditions such as electrical faults occurring in the field. The negative sequence of currents from short circuits induce severe torsional vibrations, coupling failures, bearing failures, blade rubbing and failures. In this course we will learn of torsional natural frequencies of the drive train. If the bearings fail, the drive train bending critical speeds would also change. The unbalance response of the rotors will become excessive and misalignment would exacerbate the situation. Fracture mechanics theories for crack initiation, propagation and final fracture and the time taken for this failure phenomenon to occur are presented. Based on rotor coast down conditions verified by the presence of new critical speeds, the exact time of unstable fracture can be estimated. With today's high performance computers these procedures can be combined with results that would lead to providing timely warning and stoppage of the machine to save it from catastrophic failure.
12.00pm		**Risk Application on Infrastructure in Conventional Contract and Performance Based Contract from Perspective of Owner** Mochammad Agung Wibowo, Evita Indrayanti, Bagus Hario Setiadji and Asri Nurdiana, Diponegoro University, Indonesia	**Experimental Research on Monitoring Method of Journal Bearing Wear Based on Thermoelectricity for Diesel Engine** Biao Wan, Wuhan University of Technology, China	
12.15pm	**Implementing Asset Management in a Naval Environment** LEAD SPEAKER: James Tziros, WAMA Alliance, Australia	**PANEL SESSION** **How to improve Asset Management Performance Assessment Systems?** Performance assessment systems are like the weather forecast: they start by telling us what the weather was today. Performance assessment systems tell us how we have done in yesterday's circumstances fulfilling yesterday's needs. These systems are frequently criticized for encouraging short-term behavior, lacking strategic focus, stimulating sub-optimization, creating a lack of ambition and influencing managers to minimize variances rather than seek to continually improve. How can we improve performance assessment systems to help us meet customer's needs in today's and tomorrow's dynamic world? In this session, we first introduce challenges we face. Next we will look at the possibilities to improve performance assessment systems. We propose and discuss six areas for improvement: #1 – Develop a whole of organisation approach #2 – Model causal effects using system dynamics #3 – Focus on customer value not the asset #4 – Build a dynamic and varied PMS #5 – Not all indicators need targets or consequences #6 – Avoid over-reliance on the PMS **CONVENOR:** Melinda Hodkiewicz, University of Western Australia **PANELISTS** Rob Schoenmaker, Delft University of Technology, The Netherlands Adolfo Crespo Marquez, University of Sevilla, Spain Jayantha P. Liyanage, University of Stavanger, Norway Darren Covington, Mainpac, Australia	**Analysis of dynamic response of thin-walled structure subjected to thermal-acoustic loading** Xianglian Li and Shunming Li, College of Science, Nanjing University of Aeronautics and Astronautics, China	
12.30pm			**The design and performance of a novel vibration-based energy harvester adopted various machine rotational frequencies** Peter W. Tse and Shilong Sun, City University of Hong Kong, China	
12.45pm	**Risk Management of Defence Assets through digital transformation** Michael Carter, Redeye, Australia		**Analysis of flexural vibration of V-shaped beam immersed in viscous fluids** Lu Hu, Wen-Ming Zhang, Han Yan and Hong-Xiang Zou, Shanghai Jiao Tong University, China	
	Application of Discrete Event Simulation to Maintenance and Availability Planning Peter Sanders, BMT Design & Technology, Australia		**Study on the vibration reduction performance of smart spring** Miaomiao Li, De Ni, Weiming Wu, Rupeng Zhu and Shunming Li, Nanjing University Of Aeronautics And Astronautics, China	
1.00pm				

Time	Program
1.15pm - 2.15pm	**Lunch & Exhibition** **Boulevard Concourse**
2.15pm - 3.00pm	**Keynote** **Technologies and Asset Management: What's Really Going on in Industry** Professor Klaus Blache, Reliability and Maintainability Center & University of Tennessee – Tickle College of Engineering, USA *CHAIR: Stephen Saladine, Asset Institute, Australia* **Boulevard Auditorium**

CONCURRENT SESSION 10 – Friday

Time	SESSION 10.1	SESSION 10.2	SESSION 10.3	SESSION 10.4
	Health Infrastructure	**Asset Criticality**	**Reliability Modelling & Maintenance Decision Support 4**	**MINICOURSE: Mine autonomous haul system: assessing the impact in asset management**
	CHAIR: Ashantha Goonetilleke, QUT, Australia	CHAIR: Jayanta P. Liyanage, University of Stavanger, Norway	CHAIR: C W Lim, City University of Hong Kong, China	**COURSE LEADER:** Carla Boehl, Curtin University & Mining Education Australia
	Boulevard Auditorium	**Boulevard Room 1**	**Boulevard Room 2**	**Boulevard Room 3**
3.00pm	**Precinct-based Trigeneration – the large hospital experience at Lady Cilento Children's Hospital, Brisbane Queensland** LEAD SPEAKER: Michael Campbell, Children's Health Queensland, Australia	**Strategic Asset Planning: Balancing Cost, Performance and Risk in an Aging Asset** Ype Wijnia and John de Croon, AssetResolutions BV, The Netherlands	**Theory of Testability Oriented Equipment Health Management** Shuming Yang, Xiaofei Zhang and Xiaoyu Wen, National Universtiy of Defense Technology, China	ABSTRACT: Autonomous haulage system (AHS) is an intelligent management of a system using appropriate technology so that its operation can occur without direct human involvement. To remain competitive in the global mining industry this technology is being pursued in Australia as it is believed that AHS can boost productivity and to reduce mining costs. Even though big companies like Rio Tinto, BHP Billiton and Fortescue Metals Group are currently applying AHS into their daily mining activities, there are still some concerns about deploying AHS for other companies such as the cost and the general acceptance. This mini course will focus on the transformational impact in asset management.
3.15pm		**A bibliographic review of trends in the application of 'criticality' towards the management of engineered assets** Joel Adams, Ajith Parlikad and Joe Amadi-Echendu, University of Cambridge, UK	**Configuring and Optimizing the Maintenance Support Resource Based on a double layer Algorithm, National University of Defence Technology** Xiwen Wu, Bo Guo, Ping Jiang and Shiyu Gong, National University of Defense Technology, China	
3.30pm	**Collaborative Asset Management for Health Care** Don Sands, Synengco, Australia	**Assessment of the Impact of Maintenance Integration within a Plant using MFD: A Case Study** Hatem Algabroun, Basim Al-Najjar and Anders Ingwald, Linnaeus University, Sweden	**VETOMAC Meeting**	
3.45pm	**PANEL SESSION** **Utilising Data in Built Environments in Improving Health Care** With massive investment in new hospitals and redeveloping existing hospitals, the opportunities for leveraging data and the potential impacts on standard and quality of healthcare is unprecedented. Medical equipment, building information, mobility with smart phones and the increased shift to medical devices all create a wealth of big data as a source of significant benefit in standard and quality of care for patients. This panel session will explore the opportunities afforded for hospitals and the potential impact for healthcare. **CONVENOR:** Dr Peter W Beven, Queensland University of Technology, Senior Advisor, Queensland Health, Australia **PANELISTS:** Michael Campbell, Children's Health Queensland, Australia Don Sands, Synengco, Australia Darren Covington, Mainpac, Australia Michael Carter, Redeye, Australia	**Key considerations when developing an Asset Criticality Assessment Framework** Geoff Hales, Barnewall Resources Pty Ltd, Australia		
4.00pm		**Effective decisions for asset critical systems under dynamic conditions: An integrated research platform** Pengyu Zhu and Jayantha Liyanage, University of Stavanger, Norway		
4.15pm		**Risk prioritisation for Cultural and Arts Infrastructure** Andrew Pham, Christine Soo and Melinda Hodkiewicz, University of Western Australia Derren Foster, Western Australia Department of Culture and the Arts		

Time	Program
4.30pm- 4.45pm	**Afternoon Tea** **Boulevard Concourse**
4.45pm	**Closing Keynote** **High Risk Assets Under Uncertain Conditions: Strategic Imperatives and New Initiatives Towards Defensive Solutions in a Rapidly Changing Environment** Professor Jayantha P. Liyanage, Cluster on Industrial Asset Management (CIAM) & University of Stavanger, Norway *CHAIR: Joseph Mathew, Asset Institute, Australia* **Boulevard Auditorium**
5.15pm- 5.30pm	**Closing Ceremony** **Boulevard Auditorium**