WCEAM/VETOMAC 2017 DRAFT PROGRAM (Subject to Change) Wednesday 2 August 2017 Registration Opens 8.00am **Boulevard Level, Brisbane Convention & Exhibition Centre** Openina CHAIR: Joseph Mathew, Asset Institute, Australia **Boulevard Auditorium Welcome Addresses** 9.00am 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 Arun Sharma, Deputy Vice Chancellor, Queensland University of Technology Opening Address: The Lord Mayor Graham Quirk, Lord Mayor of Brisbane, Australia **Opening Address by Platinum Sponsor** 9.45am Delivering Operational Effectiveness in Asset Intensive Industries through Asset Intelligence Darren Covington, Mainpac, Australia Plenary 1 Sponsored by Mainpac CHAIR: Darren Covington, Mainpac, Australia 10.10am 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 Morning Tea & Exhibition **Boulevard Concourse** 11.15am **CONCURRENT SESSION 1** Wednesday **SESSION 1.1 SESSION 1.2 SESSION 1.3 SESSION 1.4 Reliability Modelling & Maintenance Decision** Sustainability & Climate Change Adaptation of Intelligent & Automatic Fault Diagnosis & Prognosis **Building Information Modelling Sponsored by Queensland University of Technology** Infrastructure 1 Support 1 CHAIR: Robin Drogemuller, Queensland University of CHAIR: Peter W. Tse, City University of Hong Kong, CO-CHAIRS: Dr Fahim Tonmoy and Dr David Rissik, CHAIR: Lin Ma, Queensland University of Technology, Technology, Australia NCCARF, Australia Australia **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3** A Smart and Big-Data System for Predicting the BIM, the Next Steps for Queensland, is it that Simple? Adaptive Capacity of Australian infrastructure to Overhaul decision of repairable systems based on 11.15am future climate change risks LEAD SPEAKER: Andrew Curthoys, Department of Remaining Useful Life of Real Industrial Machines the power-law model fitted by a weighted parameter Infrastructure, Local Government and Planning, LEAD SPEAKER: David Singleton, Infrastructure LEAD SPEAKER: Peter W. Tse, City University of Hong estimation method Sustainability Council of Australia (ISCA), Australia LEAD SPEAKER: Renyan Jiang, Changsha University of Queensland, Australia Kong, China 11.30am Science and Technology, Changsha, China Innovation in BIM for Emergency Management and **Climate Change Impacts for Asset Managers** The feature analysis for fault diagnosis of rotating Statistical analysis for wood poles using sound **Response in High Risk Environments** Adjunct Professor David Hood, Long Future Foundation, wood measurements data Peter W Beven, Queensland University of Technology, Allen Tam, Iris Kwan and Mark Halton, Relken Australia Hyeontak Yu, Byunghyun Ahn, Jungpil Noh, Hyomin Senior Advisor, Queensland Health, Australia Jeong and Byeongkeun Choi, GyeongSang National Engineering, Australia 11.45am University, Republic of Korea BIM in FM: The Real Deal Enablers and barriers of smart data-based asset **Centrifugal Compressor Diagnosis Using Kernel** Malcolm Foort, ZUUSE, Australia management services in industrial business PCA and Fuzzy Clustering networks X. Liang, F. Duan, D. Mba, B. Ian, Cranfield University, Toni Ahonen, Jyri Hanski, Helena Kortelainen, Teuvo 12.00pm Uusitalo, Matti Hyvärinen, Henri Vainio. Susanna Kunttu and Kari Koskinen. VTT Technical Research Centre. Finland **Localization of Bluetooth Smart Equipped Assets Automated and Predictive Monitoring and Diagnosis Optimal Group Preventive Maintenance Policy for Climate Change and Coastal Transport** Based on Building Information Models in the Energy and Natural Resources Sector ultiple Identical Leased Devices with Weibull Greg Fisk, BMT WBM, Australia Yvonne Power, IMPower Technologies, Australia Mahtab Nezhadasl, Curtin University, Australia Lifetime Distributions by Using Failure Rate 12.15pm Fahim Tonmoy and David Rissik, NCCARF, Australia Reduction Yu-Tzu Cheng, Ruey-Huei Yeh, Yu-Hong Chen and Wei-Chun Chen, National Taiwan University of Science and Technology, Taiwan Applying the COBie approach to Linear Infrastructure Robin Drogemuller, Queensland University of Technology, 12.30pm **Lunch & Exhibition** 12.45pm - 1.45pm **Boulevard Concourse** Keynote **Engineering Asset Management: Understanding the Management Element** Professor Kerry Brown, Edith Cowan University, Australia 1.45pm CHAIR: Joe Amadi-Echendu, University of Pretoria, South Africa **Boulevard Auditorium CONCURRENT SESSION 2** Wednesday SESSION 2.1 **SESSION 2.2 SESSION 2.3 SESSION 2.4** Sustainability & Climate Change Adaptation of **Intelligent & Automatic Fault Diagnosis & Prognosis Reliability Modelling & Maintenance Decision** Governance & Planning 1 Infrastructure 2 Support 2 CO-CHAIRS: Dr Fahim Tonmoy and Dr David Rissik, CHAIR: Kerry Brown, Edith Cowan University CHAIR: Peter W. Tse, City University of Hong Kong CHAIR: Ming Zuo, University of Alberta, Canada NCCARF, Australia **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3 Creating Smart Ways of Using Smart Technologies Coordination between Maintenance and Production** The role of the board in Asset Management: An Seawalls for coastal protection and climate change adaptation: A case study from the Gold Coast for Asset Management: Challenges, Opportunities, integrated approach to Governance by means of Auction Mechanisms for Increased Rodger Tomlinson and Leslie Angus Jackson, Griffith **Efficiency of Production Systems** and Future Trends 2.30pm LEAD SPEAKER: Monique Beedles, Teak Yew, Australia Centre for Coastal Management, Australia LEAD SPEAKER: Xiangyu Wang, Curtin University, Günther Prof. Dr.Ing. Schuh and Michael Kurz, FIR e. V. an der RWTH Aachen / Institute for Industrial Australia Management, Germany Integrated modelling and decision support of continuous production systems Samuel Patterson, Paul Hyland and Talara Berry, 2.45pm Queensland University of Technology & Synengco, Australia **PANEL SESSION: Better than Best Practice SAMP** Adapting transport infrastructure to climate change: Indirect ship hull condition monitoring using speed **Joint Optimization of Preventive Maintenance and** Who bears the risk and responsibility? and fuel consumption analysis **Spare Parts Logistics for Multi-echelon Geographically Dispersed Systems** Strategic Asset Management Plans are at the forefront of Samantha Hayes, Griffith University, Australia Roar Adland, Pierre Cariou, Haiying Jia and Francois-3.00pm these changes as they signal a shift from simply planning Charles Wolff, Norwegian School of Economics (NHH), Keren Wang and Dragan Djurdjanovic, University of for asset acquisition and ongoing maintenance to a Texas at Austin, USA strategic view about determining the purpose and Assess the Inter-related Impacts of Carbon Taxation, **Development of autonomous hammering test** objectives of assets to support the objectives of the **Electric Power Costs and Solar PV Installation Using** method for deteriorated concrete structures based organisation. However, it is often unclear how to formulate on artificial intelligence and 3D positioning system and develop SAMPs from a strategic perspective and to System Dynamics Modeling Katsufumi Hashimoto, Tomoki Shiotani, Takahiro Amy Trappey and Charles Trappey, National Tsing Hua generate a long-term perspective for assets and service 3.15pm University, Taiwan delivery through those assets. Nishida, Hideo Kumagai and Katsuhiko Kokubo, Kyoto University, Japan This Panel will discuss next generation examples and latest thinking about SAMPs. **Decision-Making in Asset Management under** Flood exposure and social vulnerability for Features analysis of vibration signal according to prioritizing local adaptation of urban storm water crack and leakage of heat exchanger tube **Regulatory Constraints CONVENOR:** Kerry Brown, ECU, Australia Dragan Komljenovic, Georges Abdul-Nour and Jeansystems Jongmyeong Lee, Hyeontak Yu, Jeongmin Ha, Hyomin 3.30pm Tanvir Ahmed, University of Sydney, Australia Jeong and Byeongkeun Choi, GyeongSang National François Boudreau, Hydro Quebec Research Institute, **PANELISTS** University, Republic of Korea Canada. Monique Beedles, Teak Yew, Australia Alan Rosser, Queensland Rail, Australia Christine Ip, Queensland Treasury Corporation, Australia 3.45pm 4.00pm -**Afternoon Tea Boulevard Concourse** 4.30pm **CONCURRENT SESSION 3** Wednesday **SESSION 3.1 SESSION 3.2 SESSION 3.3 SESSION 3.4** Sustainability & Climate Change Adaptation of Intelligent & Automatic Fault Diagnosis & Prognosis **Reliability Modelling & Maintenance Decision** Governance & Planning 2 Infrastructure 3 Support 3 CO-CHAIRS: Dr Fahim Tonmoy and Dr David Rissik, CHAIR: Kerry Brown, Edith Cowan University, Australia CHAIR: Peter W. Tse, City University of Hong Kong CHAIR: Ming Zuo, University of Alberta, Canada NCCARF, Australia **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3** E-trademark registration services to improve process MBVI (Model-based Voltage and Current) systems: a Climate change adaptation of infrastructure and tool for optimising Asset Management **Predictive Models of Maintenance Needs for Power** performance and prevent trademark infringement CoastAdapt tool LEAD SPEAKER: Amy Trappey, National Chiao Tung LEAD SPEAKERS: Fahim Tonmoy and David Rissik, Strategies? What they do, how they work and some Distribution Wood Poles Using Machine Learning - A NCCARF, Australia case study examples 4.30pm University, Taiwan **Conceptual Case Study** Geoff Walker, Artesis LLP, UK Alexandre Cesa, Carla Boehl and Kecheng Shen, Curtin University, Australia **Modelling the Effect of Time-dependent Covariates** on the Failure Rate of Wind Turbines 4.45pm Feixiang Wu, Yifan Zhou and Jingjing Liu, Southeast University, China PANEL SESSION An approach to quantify assets value according to the Reciprocating compressor valve leakage detection **Predictive modelling the Downer way** ISO 55000 concept Phillipa O'Shea, Hui Chen and Hamish Featonby, under varying load conditions Vicente González-Prida Díaz, Adolfo Crespo Márquez, Panagiotis Loukopoulos, George Zolkiewski, Ian Downer New Zealand, New Zealand Increasing climate resiliency of Australia's 5.00pm Antonio Guillén, Juan Francisco Gómez Fernández and infrastructure sector: Challenges and Opportunities Bennett, Suresh Sampath, Pericles Pilidis, Fang Duan Antonio De La Fuente, University of Seville, Spain and David Mba, Cranfield University, UK **CONVENOR:** Fahim Tonmoy, NCCARF **Investments Portfolio Optimal Planning Configuring and Optimizing the Maintenance** Jerome Lonchampt, EDF, France Support Resource Based on a double layer **PANELISTS** Algorithm, National University of Defence David Singleton, Infrastructure Sustainability Council of 5.15pm Technology Australia (ISCA), Australia Xiwen Wu, Bo Guo, Ping Jiang and Shiyu Gong, National Rodger Tomlinson, Griffith Centre for Coastal University of Defense Technology, China Management, Australia David Rissik, NCCARF, Australia Value of Asset Management: Investigation into its Theory of Testability Oriented Equipment Health Method to determine internal leakage of aircraft's Greg Fisk, NCCARF, Australia determination and measurement Management hydraulic servo Jouko Laitinen and Kari Koskinen, Tampere University of Shuming Yang, Xiaofei Zhang and Xiaoyu Wen, National Ernst Krauss and Carla Boehl, WA School of Mines, Curtin 5.30pm Technology, Finland University, Australia Universtiy of Defense Technology, China Tools to support value for money asset investment outcomes 5.45pm Lloyd Arnott, Aurecon, Australia 6.00pm **Welcome Reception** 8.00pm **Boulevard Concourse, Brisbane Convention & Exhibition Centre** 8:00pm **ISEAM Members' Briefing** 9:00 pm **Thursday 3 August 2017 Registration Opens** 8.30am **Boulevard Level, Brisbane Convention & Exhibition Centre** Keynote The 4th Industry Revolution: Reflecting on the Opportunities, Barriers and Risk for Asset Management Professor Marco Macchi, Politecnico di Milano, Italy 9.00am CHAIR: Helena Kortelainen, VTT Technical Research Centre, Finland **Boulevard Auditorium CONCURRENT SESSION 4** Thursday **SESSION 4.2 SESSION 4.3 SESSION 4.1 SESSION 4.4** NDT & AE in Condition Monitoring 1 **WORKSHOP: Long Future Sustainability for Asset Public Assets Maintenance Strategies** Sponsored by NMEMS Managers FACILITATORS: David Hood & Guy Lane, Long CHAIR: David Edgerton, APV Valuers and Asset CHAIR: Andy C.C. Tan, Universiti Teknologi Abdul CHAIR: Moray Kidd, The University of Manchester, UK Management, Australia Rahman, Malaysia Future Foundation, Australia **Boulevard Auditorium Boulevard Room 2 Boulevard Room 3 Boulevard Room 1** Insights into Queensland's Public Assets Maintenance Strategies for Next Generation Industry, Advanced NDT contributing performance evaluation ABSTRACT: Long Future Sustainability is a short LEAD SPEAKER: Patrick Flemming, Queensland Audit LEAD SPEAKER: Moray Kidd, The University of intensive workshop that seeks to redefine sustainability of civil structures Office (QAO), Australia Manchester, UK LEAD SPEAKER: Tomoki Shiotani, Kyoto University, in the light of current threats to life on Earth. It will 9.45am empower Asset Managers with knowledge, passion and CO-AUTHORS: Takahiro Nishida, Katsufumi Hashimoto 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 Sustaining public assets for local communities - the **Maintenance Footprints** The design of a novel line-array type of laser source activities, videos, and some unique audio/visual content role of innovation and partnerships Phillipa O'Shea, Downer, New Zealand for non-contacted guided waves to inspect the and music. LEAD SPEAKER: Roland McMillan, Local Government integrity of plates 10.15am Association of Queensland, Australia Peter W. Tse and Jingming Chen, City University of Whether you are new to the conversation about Hong Kong sustainability, or not, this workshop has content that many people have never considered part of the **NextGen Forward Works Programme Development** Novel nondestructive technique of internal dialogue about sustainability. and Management deterioration in concrete deck with elastic wave Phillipa O'Shea, Downer, New Zealand approaches Participating in Long Future Sustainability will help you: 10.30am Kazuo Watabe, Hidefumi Takamine, Takahiro Nishida and Tomoki Shiotani, Toshiba Corp., Japan - Identify hidden and future risks to your organisation; Learn about exciting new business opportunities; See new frameworks to apply to your products & Combining technologies to improve AM outcomes Partners in maintenance - benefits and barriers in Evaluation of condition and damage in reinforced using partnering-based maintenance contracts concrete by elastic wave method Abe Nezamian, Aurecon, Australia - See exciting – and sometimes scary – new ideas to Anders Ingwald and Mirka Kans, Linnaeus University, Takeshi Watanabe, Hayato Fukutomi, Kohei Nishiyama, share with collegues; and 10.45am Akari Suzuki and Chikanori Hashiimoto, Tokushima Sweden - Gain new knowledge, passion and drive to contribute University, Japan to a Long Future for life on Earth Attendees will come away feeling that the world Configuration Management - Why Asset Land Bank for National Strategic Projects in Indonesia Quantification of valve severity in reciprocating suddenly makes sense, confident that they have an Rahayu Puspasari, Ministry of Finance, Republic of Management can't do without it compressor by using acoustic emission technique edge over their competitors, and more than ever able to Greg Wilcock and Peter Knights, University of Hoi-Yin Sim, Rahizar Ramli, Ahmad-Saifizul Abdullah Indonesia see the elephants in their own Board rooms. 11.00am Queensland, Australia and Ming-Foong Soong, University of Malaya, Malaysia 11.15am Morning Tea & Exhibition Sponsored by K2Fly **Boulevard Concourse** 11.45am **CONCURRENT SESSION 5** Thursday **SESSION 5.1 SESSION 5.2 SESSION 5.3 SESSION 5.4 WORKSHOP: Evaluating Data Management Maturity** Technology & Management – Smart maintenance / **Sustainable Property Assets** NDT & AE in Condition Monitoring 2 **Digitalization 1** for Engineering Assets FACILITATOR: Jess B. Kozman, Professional CHAIR: Andy C.C. Tan, Universiti Tunku Abdul Rahman, CHAIR: Tony Brasier, PRDnationwide, Australia CHAIR: Marco Macchi, Politecnico di Milano, Italy Petroleum Data Management (PPDM) Association, Malaysia Singapore **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3 Increasing Awareness and Adoption of Sustainability Maintenance Analytics and Industrial Data Science** Acoustic Emission technique for monitoring of PREAMBLE: As asset-intensive industries recognize Features and Considerations in the Property Industry common faults in diesel engines engineering asset data from critical infrastructure and LEAD SPEAKER: Professor Diego Galar, Luleå LEAD SPEAKER: Dr Diaswati Mardiasmo, PRDnationwide, University of Technology, Sweden Andy C.C. Tan, University Tunku Abdul Rahman facilities as a corporate asset, many find themselves 11.45am Australia 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 Avoidance of Generator outage by vibration and safe operations. monitoring R.S. Maurya, NTPC Ltd, India 12.00pm **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), A Novel Approach to Sensor-less Daylight Harvesting From asset provider to knowledge company -Efficient Evaluation of Internal Concrete Damage of and applies survey and benchmarking techniques in Commercial Office Buildings transformation in the digital era Steel Plate-Bonded RC Slabs developed for analyzing information management Helena Kortelainen, Jyri Hanski and Ari Happonen, VTT Norihiko Ogura, CORE Institute of Technology Corp. Brenden Harris, Fredon, Australia capability and complexity in other asset-intensive 12.15pm Hitoshi Yatsumoto, Hanshin Expressway Company Ltd. Technical Research Centre of Finland industries over the last two decades. Participants will Takahiro Nishida and Tomoki Shiotani, Kyoto University evaluate their own organization's capability maturity for the management of engineering asset data management, and the workshop facilitator will then lead **Sustainable Housing Toolkit** Repair and Overhaul Supply System Integrated Feature analysis of ultrasound signal for diagnosis an interactive workshop to learn how that evaluation Connie Susilawati, Wendy Miller, Queensland University of Jungpil Noh, Byunghyun Ahn, Donghee Park, Hyojung Planning at Roy Hill can be used to benchmark against other organizations Technology and Asti Mardiasmo, PRD Nationwide, Agata Guzek, Indrasen Naidoo and Carla Boehl, Kim and Byeongkeun Choi, Gyeongsang National and industries, to select and define quick win projects 12.30pm Maintenance, Roy Hill, Australia University, Republic of Korea Australia 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 Employee engagement culture in green buildings: The Data Quality in Asset Management - Creating and Ultrasonic Phased Array on Time-of-Flight Diffraction value of efficiently managed engineering asset data. for Non-Destructive Testing via Numerical Modelling role of managers in managing human assets to drive Maintaining a Foundation for data analytics Allen Tam and Iris Kwan, Relken Engineering, Australia Tat-Hean Gan, Channa Nageswaran and Mario Kostan, financial outcomes 12.45pm Subha Parida and Kerry Brown, Edith Cowan University, Brunel University London, UK Australia Predictive Maintenance is an integral part of Asset Improving Property Practitioners' Involvement in Information Flow of Sustainability Features of Life Cycle Maintenance Model **Residential Property** Md Mahdi Hassan, Carla Boehl and Mahinda Kuruppu, Shi Yee Wong, Connie Susilawati, Wendy Miller, Western Australian School of Mines, Curtin University, 1.00pm Queensland University of Technology and Asti Mardiasmo, Australia PRD Nationwide, Australia **Lunch & Exhibition** 1.15pm -Sponsored by Schneider Electric / Fredon 2.15pm **Boulevard Concourse** Keynote Asset Management Through Life Estimation Professor Romuald Rzadkowski, Airforce Institute of Technology, Poland 2.15pm CHAIR: Chee Wah Lim, City University of Hong Kong, China **Boulevard Auditorium CONCURRENT SESSION 6 Thursday SESSION 6.1 SESSION 6.2 SESSION 6.3 SESSION 6.4 WORKSHOP: Recognition of Engineering Asset** Technology & Management - Smart maintenance / **Condition Monitoring of Machine Elements 1 Management Programmes at Higher Educational Energy Assets 1** Digitalization 2 Institutions CHAIR: Joe Amadi-Echendu, University of Pretoria, CHAIR: Robert B. Randall, University of New South CHAIR: Don Sands, Synengco, Australia CHAIR: Marco Macchi, Politecnico di Milano, Italy South Africa Wales, Australia **Boulevard Auditorium Boulevard Room 2 Boulevard Room 3 Boulevard Room 1** PREAMBLE: The International Society for Engineering **Deep Learning Paradigm for Asset Management** Managing Electricity Assets in the 21st Century-Use of cyclostationarity to detect changes in gear **Revolution Not Evolution** LEAD SPEAKER: Nalinaksh Vyas, Indian Institute of surface roughness using vibration measurements Asset Management (ISEAM www.iseam.org) is a not-LEAD SPEAKER: Stephen Saladine, Generator Property Technology Kanpur & Technology Mission for Indian Xihao Zhang, Wade A. Smith, Pietro Borghesani, for-economic-profit organisation with a primary 3.00pm objective to "pursue charitable purposes, in particular Management & Asset Institute, Australia Railways, India Zhongxiao Peng and Robert B. Randall, University of New South Wales, Australia the advancement of science and the advancement of education with a focus in the specific area of scientific knowledge known as integrated engineering asset Extracting the characteristic frequency of the weak management". ISEAM is "...dedicated to the fault signal of blade crack by using the development and recognition of Engineering Asset underdetermined blind source separation algorithm Management (EAM) as an integrated and important based on SCA body of knowledge" through "...liaising with national 3.15pm Hongkun Li, Changbo He and Xinwei Zhao, Dalian and international bodies to provide a global approach to" EAM. It is in this regard that ISEAM organises the University of Tehnology, China WCEAM series, and particularly this 12th edition in conjunction with 13th VETOMAC 2017. This is the **Being Certain in Tomorrow's Uncertainty Forecast Model for Optimization of the Massive** Research on the Effect of Meshing Impact on Noise second instance of the workshop, and will include a **Radiation in Planetary Gear Transmission** Ben Hayden, Stanwell, Australia Forming Machine OEE presentation of the results of the survey conducted Markus Ecker and Markus Hellfeier, SMS group GmbH, Bau Heyun, Zhu Rupeng, Dai Lin, Li Fengbo, Nanjing during the first workshop held in 2016. 3.30pm University of Aeronautics and Astronautics, China Germany MOTIVATION: Engineering asset management encompasses all types of engineered assets including built environment, infrastructure, plant, equipment, **Analysing an Industrial Safety Process through Bridge Management Integrating Big Data of** Influence of tooth surface friction on dynamic hardware systems and components. This workshop will **Process Mining: A Case Study** Structural Health Monitoring transmission error of split torque transmission provide an opportunity to present and discuss ISEAM's Anastasiia Pika, Arthur H.M. Ter Hofstede, Robert K. Yunxia Xia, Chunwei Zhang, Qingdao University of 3.45pm ongoing initiative to recognise academic programs at Perrons, Georg Grossmann, Markus Stumptner and Jim G.H. Jin, H.Y. Yang, R.P. Zhu, S.M. Li, Nanjing Technology, China higher educational institutions (HEI's). EAM covers a University of Aeronautics and Astronautics, China Cooley, Queensland University of Technology, Australia very wide multidisciplinary scope, thus, the key question is "what constitutes EAM body of knowledge A modified sideband energy ratio for fault detection **Engineering Asset Management for various power** A Data-driven Decision Model: A Case on Drawworks (EAMBoK)?" ISEAM's recognition, rather than statutory in Offshore Oil & Gas Industry generations: common concepts and specificities of planetary dearboxes accreditation, has two fundamental aims Jerome Lonchampt, EDF, France Pengyu Zhu, University of Stavanger, Norway Mian Zhang, Dongdong Wei, Kesheng Wang and Ming J 4.00pm Zuo, University of Electronic Science and Technology, To provide assurance that "asset management" academic programs at HEIs address EAM body of knowledge: - To encourage pedagogical and structured Automated bearing fault diagnostics with cost-Five Future-Proof Steps to Drive Relaibility with IIoT development of educational curricula, as well as Bill Steele, Emerson, USA effective vibration sensor research and training programmes that advance the Agusmian Partogi Ompusunggu, Bovic Kilundu EAM body of knowledge. 4.15pm Y'Ebondo, Ted Ooijevaar and Steven Devos, Flanders Make, Belgium 4.30pm -**Afternoon Tea** 4.45pm **Boulevard Concourse CONCURRENT SESSION 7 Thursday SESSION 7.1 SESSION 7.2 SESSION 7.3 SESSION 7.4** Technology & Management - Smart maintenance / **Energy Assets 2 Condition Monitoring of Machine Elements 2 Education & Training Digitalization 3** CHAIR: Robert B. Randall, University of New South CHAIR: Belle Upadhyaya, University of Tennessee, CHAIR: Don Sands, Synengco, Australia CHAIR: Marco Macchi, Politecnico di Milano, Italy Knoxville, USA Wales, Australia **Boulevard Room 2 Boulevard Room 3 Boulevard Auditorium Boulevard Room 1 Enterprise Risk Profiling using Asset Transaction** Assessing Total Cost of Ownership: Effective asset Acoustic signature based early fault detection in Do we know we are competent? A controversial management along the supply chain rolling element bearings question for asset managers and their teams History Robin Platfoot, Covaris, Australia Amir Noorbakhsh, Carla Boehl and Kerry Brown, Amir Najafi Amin, Kris McKee, Ilyas Mazhar, Arne LEAD SPEAKER: Steve Pudney, Intrinsic Engineers, 4.45pm Western Australian School of Mines, Curtin University, Bredin, Ben Mullins and Ian Howard, Curtin University, Australia Australia Australia VME a tool for risk informed engineering asset Value-based opportunity management process for Condition monitoring of rotating machinery with Study of the identification and validation of multidisciplinary and specific competencies within management asset intensive organization Acoustic Emission: a British-Australian collaboration Davide Crivelli, Simon Hutt, Alastair Clarke, Pietro a postgraduate program of asset and maintenance Jerome Lonchampt, EDF, France Manuela Trindade, Nuno Almeida, Matthias Finger and Daniel Ferreira, IST - University of Lisbon, Portugal Borghesani, Zhongxiao Peng and Robert Randall, Cardiff management 5.00pm Edward Johns, Simón Gómez, Tomás Grubessich, School of Engineering, Wales Raúl Stegmaier and Fredy Kristjanpoller, Universidad Técnica Federico Santa María, Chile Reliability and Maintainability Engineering Program Managing Assets the Digital Way - Eye from Above Predicting the remaining life of timber bridges Vane Pump Damage Detection via Analysing Sanil C Namboodiripad, Sterlite Power, India Tane Abbott, Nirdosha Gamage, Sujeeva Setunge and Synchronously Averaged Vibration Signal at the University of Tennessee Belle Upadhyaya, Mingzhou Jin and Wesley Hines, Weena Lokuge, University of Southern Queensland, Wenyi Wang, DST Group, Australia Australia University of Tennessee, Knoxville, USA 5.15pm **Smart Asset Management for Electrical Utilities: Big** Novel monitoring of offshore wind turbines Vibration analysis of machine tools' spindle units **Successful Organisational Development of Asset** supporting structure using acoustic emission Ali Rastegari, Volvo, Sweden **Management Organisations Data and Future** Swasti R. Khuntia, Delft University of Technology, The Jasper Coetzee and Solly Nkosi, University of Pretoria, technique 5.30pm Netherlands Ángela Angulo, Tat-Hean Gan, Jamil Kanfoud and Slim South Africa Soua, TWI Ltd, UK Single-Sensor Identification of Multi-Source Vibration An evidence based approach to improving training An integrated approach to process safety Structural Integrity Assessment of Ships and Ship-Martin Sedgwick and Steven Rigby, Origin Energy, **Shaped Offshore Structures** Faults based on Power Spectrum Estimation with and development in Critical Infrastructure and Australia Tat-Hean Gan and Subin Kumaran, Brunel University **Application to Aircraft Engines Engineering Asset Management Organisations** Shunming Li, Yu Xin and Xianglian Li, Nanjing University 5.45pm London, UK Jeremy Novak, Centaur Institute, Australia of Aeronautics and Astronautics, China **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 6.30pm -10.00pm **Best Paper Awards ISEAM Lifetime Achievement Award VETOMAC 2018 Portugal Presentation** WCEAM 2018Stavanger, Norway Presentation **Entertainment: Chris Poulsen Trio** Friday 4 August 2017 **Registration Opens** 8.30am **Boulevard Level, Brisbane Convention & Exhibition Centre** Keynote Systems Resilience: A Unifying Framework and associated Measures 9.00am Professor Loon Ching Tang, Temasek Defence Systems Institute & National University of Singapore 9.45am CHAIR: Ming Zuo, University of Alberta, Canada **Boulevard Auditorium CONCURRENT SESSION 8** Friday **SESSION 8.2 SESSION 8.3 SESSION 8.4 SESSION 8.1 MINICOURSE: The Open Industrial Interoperability** Ecosystem, A Supplier-Neutral Digital Ecosystem, **Water Assets Performance Measurement 1** Vibration Engineering 1 **Enabling Critical Infrastructure & Industrial Asset** Sponsored by K2Fly Management CHAIR: Nima Gorjian, SA Water, Australia CHAIR: Melinda Hodkiewicz, University of Western CHAIR: Shunming Li, National University of Aeronautics COURSE LEADER: Alan Johnston, MIMOSA and Astronautics, P R China, & Chee W. Lim, City Australia University of Hong Kong **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3** Water Asset Management is Fluid and Dynamic - A **Asset Management Performance Measurement** Thermo-acoustic radiation of free-standing nano-thin ABSTRACT: The entire industrial revolution was driven 9.45am **Utility of the Future Perspective** Systems - Why they need to evolve and How film in viscous fluid by massive gains in efficiency derived from systems LEAD SPEAKER: Abel Immaraj, Queensland Urban LEAD SPEAKER: Rob Schoenmaker, Technical LEAD SPEAKER: Chee W. Lim, City University of Hong which were designed, manufactured, assembled and University Delft, The Netherlands Utilities, Australia repaired using interoperable components and spare Kong CO-AUTHORS: Adolfo Crespo Marquez, Spain, parts. Jayantha Prasanna Liyanage, Norway and Melinda Hodkiewicz, Australia The Open Industrial Interoperability Ecosystem (OIIE) can provide similar gains in efficiency for industrial **Enhancing Water Treatment Plant Resilience using** Process characteristics and process performance Semi-analytical approach to vibrations induced by Reliability Block Diagram Modelling indicators for analysis of process standardization Information Technology and Systems associated with oscillator moving on a beam supported by a finite the entire life-cycle of complex physical assets and Craig Brydges, ARMS Reliability, Australia Achim Kampker, Maximilian Lukas and Philipp Jussen, depth foundation 10.15am critical infrastructure management, while also enabling FIR e.V. an der RWTH Aachen, Germany Zuzana Dimitrovová, Universidade Nova De Lisboa, industry initiatives such as Industrie4.0 and the Industrial Portugal Internet of Things (IIOT). **Next Generation Investment Planning & Management:** Combining reliability assessment with maintenance **Unsteady Rotor Blade Forces of 3D Transonic Flow** Individual suppliers of complex physical assets and Making Informed Decisions in a Changing World performance analysis using GAMM Through Steam Turbine Last Stage and Exhaust **Hood with Vibrating Blades** related industrial IT solutions have begun to offer Dane Boers, ARMS Reliability, Australia Adolfo Crespo Márquez, Antonio Sola Rosique, Antonio 10.30am proprietary digital ecosystems, enabling their own J. Guillén López, Asier Erguido and Antonio De La Romuald Rzadkowski, Vitaly Gnesin and Ryszard Fuente, University of Seville, Spain Szczepanik, Polish Academy of Sciences, Poland 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 Quantitative Bowtie Risk Model: An Agile Tool in the Semiparametric valuation of heterogeneous assets A study on the torsional vibration response of a plants, facilities and platforms are highly heterogeneous **Utility Toolkit** Roar Adland and Sebastian Köhn, Norwegian School of three dimensional crankshaft systems of systems. Tian Ran Lin and Xue Wen Zhang, Qingdao University of 10.45am Daniel Falzon, SA Water, Australia Economics (NHH), Norway Technology This minicourse discusses how the OIIE addresses these challenges, supporting all key phases of the An Optimised Energy Saving Model for Pump Modular-based framework of key performance industrial physical asset life cycle, while enabling Scheduling in Wastewater Networks, University of indicators regulating maintenance contracts mutually beneficial cooperation between major industrial Mirka Kans and Anders Ingwald, Linnaeus University, device and equipment manufacturers, IT platform and Neda Gorjian Jolfaei, Bo Jin, Christopher Chow, Nima Sweden applications suppliers, EPC firms and asset owner/ 11.00am Gorjian and Flavio Bressan, SA Water, Australia operators. 11.15am **Morning Tea & Exhibition Boulevard Concourse** 11.45am **CONCURRENT SESSION 9** Friday **SESSION 9.1 SESSION 9.2 SESSION 9.3** SESSION 9.4 MINICOURSE: Life estimation & exact time of failure **Defence Assets Performance Measurement 2** Vibration Engineering 2 of last stage steam turbine blades COURSE LEADER: Romuald Rzadkowski, Institute CHAIR: Professor Romuald Rzadkowski. Airforce CHAIR: Melinda Hodkiewicz, University of Western of Fluid-Flow Machinery, Polish Academy of Sciences, CHAIR: Johann Aaserud, ASC Institute of Technology, Poland Australia **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3** Optimising availability, capability and affordability **Developing a Standard Framework for Improving** Calculation and Analysis of Anti-Shock of Despite standards some critical machines fail with very across the fleet: a total lifecycle management **Turbocharger for Marine Diesel Engines Equipment Design based on Operational** little warning due to excessive alternating stresses and approach for improving seaworthiness **Performance Data** Lei Hu, Jianguo Yang, Mingchao Zheng and Yonghua related fatigue damage. 11.45am Ahmed Khezam, The University of Manchester, UK LEAD SPEAKER: Tobias Lemerande, ASC, Australia Yu, College of Energy and Power Engineering, Wuhan University of Technology, China This mini-course outlines theories of general fatigue failures particularly from strain-based conditions which Risk Application on Infrastructure in Conventional **Experimental Research on Monitoring Method of** originate from transient conditions such as electrical Contract and Performance Based Contract from Journal Bearing Wear Based on Thermoelectricity faults occurring in the field. The negative sequence of Perspective of Owner for Diesel Engine currents from short circuits induce severe torsional Mochammad Agung Wibowo, Evita Indrayanti, Bagus Biao Wan, Wuhan University of Technology, China vibrations, coupling failures, bearing failures, blade 12.00pm Hario Setiadji and Asri Nurdiana, Diponegoro University, rubbing and failures. Indonesia In this course we will learn of torsional natural frequencies of the drive train. If the bearings fail, the Implementing Asset Management in a Naval **PANEL SESSION** Analysis of dynamic response of thin-walled drive train bending critical speeds would also change. structure subjected to thermal-acoustic loading The unbalance response of the rotors will become LEAD SPEAKER: James Tziros, WAMA Alliance, Australia **How to improve Asset Management Performance** Xianglian Li and Shunming Li, College of excessive and misalignment would exacerbate the 12.15pm **Assessment Systems?** Science, Nanjing University of Aeronautics and situation. Fracture mechanics theories for crack Astronautics, China Performance assessment systems are like the weather initiation, propagation and final fracture and the time forecast: they start by telling us what the weather was taken for this failure phenomenon to occur are today. presented. Based on rotor coast down conditions verified by the presence of new critical speeds, the exact time of Performance assessment systems tell us how we have The design and performance of a novel vibrationunstable fracture can be estimated. done in yesterday's circumstances fulfilling yesterday's based energy harvester adopted various machine needs. These systems are frequently criticized for rotational frequencies 12.30pm With today's high performance computers these encouraging short-term behavior, lacking strategic focus, Peter W. Tse and Shilong Sun, City University of Hong procedures can be combined with results that would lead stimulating sub-optimization, creating a lack of ambition Kong, China to providing timely warning and stoppage of the machine and influencing managers to minimize variances rather to save it from catastrophic failure. **Application of Discrete Event Simulation to** Analysis of flexural vibration of V-shaped beam than seek to continually improve. How can we improve Maintenance and Availability Planning immersed in viscous fluids performance assessment systems to help us meet 12.45pm Peter Sanders, BMT Design & Technology, Australia customer's needs in today's and tomorrow's dynamic Lu Hu, Wen-Ming Zhang, Han Yan and Hong-Xiang Zou, Shanghai Jiao Tong University, China world? In this session, we first introduce challenges we face. Next we will look at the possibilities to improve Study on the vibration reduction performance of smart performance assessment systems. We propose and discuss six areas for improvement: Miaomiao Li, De Ni, Weiming Wu, Rupeng Zhu and Shunming #1 – Develop a whole of organisation approach Li, Nanjing University Of Aeronautics And Astronautics, China #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 1.00pm **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 1.15pm **Lunch & Exhibition Boulevard Concourse** 2.15pm Keynote Technologies and Asset Management: What's Really Going on in Industry 2.15pm Professor Klaus Blache, Reliability and Maintainability Center & University of Tennessee - Tickle College of Engineering, USA 3.00pm CHAIR: Stephen Saladine, Asset Institute, Australia **Boulevard Auditorium CONCURRENT SESSION 10** Friday MINICOURSE: Mine autonomous haul system: **Health Infrastructure Asset Criticality** assessing the impact in asset management CHAIR: Jayanta P. Liyanage, University of Stavanger, COURSE LEADER: Carla Boehl, Curtin University & CHAIR: CHAIR: Ashantha Goonetilleke, QUT, Australia Mining Education Australia **Boulevard Auditorium Boulevard Room 1 Boulevard Room 2 Boulevard Room 3** Precinct-based Trigeneration - the large hospital ABSTRACT: Autonomous haulage system (AHS) is an Strategic Asset Planning: Balancing Cost, experience at Lady Cilento Children's Hospital, intelligent management of a system using appropriate Performance and Risk in an Aging Asset 3.00pm **Brisbane Queensland** Ype Wijnia and John de Croon, AssetResolutions BV, technology so that its operation can occur without direct LEAD SPEAKER: Michael Campbell, Children's Health The Netherlands human involvement. Queensland, Australia To remain competitive in the global mining industry this A bibliographic review of trends in the application of technology is being pursued in Australia as it is believed 'criticality' towards the management of engineered that AHS can boost productivity and to reduce mining costs. Even through big companies like Rio Tinto, BHP Joel Adams, Ajith Parlikad and Joe Amadi-Echendu, 3.15pm Billiton and Fortescue Metals Group are currently University of Cambridge, UK 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 **Collaborative Asset Management for Health Care** Assessment of the Impact of Maintenance acceptance. This mini course will focus on the Don Sands, Synengco, Australia Integration within a Plant using MFD: A Case Study transformational impact in asset management. Hatem Algabroun, Basim Al-Najjar and Anders Ingwald, 3.30pm Linnaeus University, Sweden Key considerations when developing an Asset **PANEL SESSION Criticality Assessment Framework Utilising Data in Built Environments in Improving** Geoff Hales, Barnewall Resources Pty Ltd, Australia 3.45pm Health Care With massive investment in new hospitals and **VETOMAC Meeting** redeveloping existing hospitals, the opportunities for leveraging data and the potential impacts on standard and Asset critical equipment and decision optimization: quality of healthcare is unprecedented. Medical An integrated research platform equipment, building information, mobility with smart Pengyu Zhu and Jayantha Liyanage, University of 4.00pm phones and the increased shift to medical devices all Stavanger, Norway create a wealth of big data as a source of significant benefit in standard and quality of care for patients. This Risk prioritisation for Cultural and Arts panel session will explore the opportunities afforded for hospitals and the potential impact for healthcare. Infrastructure Andrew Pham, Christine Soo and Melinda Hodkiewicz, CONVENOR: Dr Peter W Beven, Queensland University of Western Australia University of Technology, Senior Advisor, Queensland Derren Foster, Western Australia Department of Culture Health. Australia and the Arts 4.15pm **PANELISTS:** Michael Campbell, Children's Health Queensland, Australia Don Sands, Synengco, Australia Darren Covington, Mainpac, Australia 4.30pm-**Afternoon Tea** 4.45pm **Boulevard Concourse 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 4.45pm CHAIR: Joseph Mathew, Asset Institute, Australia **Boulevard Auditorium** 

Closing Caremony