

# Official Conference Program



Brisbane Convention & Exhibition Centre (BCEC)  
Plaza Level

6 to 10 November 2023



FORUM



Technology Convergence 2023  
Setting the Wheels in Motion:  
Reimagining the Future of Heavy Vehicles, Roads and Freight



Monday 6 November			
Registration	5:00 to 7:00 pm Plaza Level Concourse (P6)		
Evening Function	7:00 to 9:00 pm Exhibition Hall (P6, P7 & P8)	Welcome Reception	Sponsored by <b>V-DAQ</b>

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The conference program continues on the following pages.

# Technology Convergence 2023

## Setting the Wheels in Motion:

## Reimagining the Future of Heavy Vehicles, Roads and Freight



Tuesday 7 November			
Exhibition	All Day      Exhibition Hall (P6, P7 & P8)		
Conference Start	9:30 am      (P10 & P11)		
Official Opening/ Plenary Session 1	<b>Technology Convergence: Reimagining the Future</b> <b>Loes Aarts</b> – President, International Forum for Heavy Vehicle Transport & Technology (HVTT Forum) <b>Chris Koniditsiotis</b> – President, International Society for Weigh-In-Motion (ISWIM) <i>Moderator: Gavin Hill – Vice President, Australasia and Pacific, HVTT Forum</i>		
Morning Tea	10:30 to 11:00 am    Exhibition Hall (P6, P7 & P8)		
Parallel Session 1  <b>Reimagining heavy vehicles &amp; freight (P10)</b>  <b>Chair</b> Mats Harborn	Road freight electrification around the world using electric road systems <i>P. DESHPANDE, C. DE SAXE, D. AINALIS, J. MILES, D. CEBON</i>  Zero Emission, flexible vehicle platforms with modular powertrains serving the long-haul Freight Eco System (ZEFES) <i>O. HEGAZY, B. KRAAIJENHAGEN</i>  Towards the development of a trucking fleet concept of operations (CONOPS) for managing automated driving system-equipped trucks in mixed fleets <i>R. HANOWSKI, A. KRUM, X. JIN</i>	Parallel Session 1  <b>Technology convergence &amp; the digital revolution (P11)</b>  <b>Chair</b> Jonathan Regehr	Automated docking of tractor semitrailer with driver in the loop via 5G teleoperation <i>K.KURAL, N. MUTHAKANA, D. DEVASIA, G. VAN STEKELBURG, B. HETJES, R. KUSUMAKAR, O. HELD, J. JUZA</i>  Individual Vehicle Record (IVR) signature re-identification methods and new truck travel attribute results <i>S. JESSBERGER, S.JENG, L. CHU</i>  Designing high speed weigh-in-motion system with local linear regression in Wollonia (Belgium) – towards direct weight enforcement <i>L. WARSCOTTE, J. BOREUX</i>  How does WIM data provide value to ITS industry? <i>P. WANG, Z. CHEN</i>
Lunch	12:30 to 1:30 pm    Exhibition Hall (P6, P7 & P8)		
Parallel Session 2  <b>Optimising fuel efficiency &amp; emissions (P10)</b>  <b>Chair</b> Dom Kalasih	Truck tire and real-life fuel consumption <i>F. DOMPROBST, J. BEAUPERE</i>  Analysis of axle configuration, tire pressure, and tire temperature on fuel consumption of HCT combinations <i>L. CIDER, K. PÅLSSON, E. PETTERSSON, L. LARSSON, T. JOHANSSON, S. JOHANSSON, G. IVEN, S. KÖPPEN, C. REPPLINGER</i>  Introducing a novel method for measuring rolling resistance and dynamic vertical load on a semi-trailer suspension <i>W. LEVESQUE, A. BÉGIN-DROLET, J. LÉPINE</i>	Parallel Session 2  <b>Advancing the science of road management (P11)</b>  <b>Chair</b> Steven Jessberger	Overweight vehicles: Impact on road infrastructure and safety <i>T. BREEMERSCH, I. KNIGHT, S. FONTUL, S. VIEIRA GOMES, B. JACOB</i>  Testing of next generation wide base tyres – pavement impacts <i>A. GERMANCHEV, L. BRUZA, C. LOOSE</i>  High-capacity transport in cities and the impact on the roads <i>S. RAHMAN, S. KHARRAZI, S. ERLINGSSON</i>  Enhanced synergic identification of prestress force and moving force in prestressed concrete bridges <i>K. JEYAMOHAN, T. CHAN, K. NGUYEN DECRA, D. THAMBIRATNAM</i>
Afternoon Tea	3:00 to 3:30 pm    Exhibition Hall (P6, P7, and P8)		
Parallel Session 3  <b>Measuring mass through technology convergence (1) (P10)</b>  <b>Chair</b> Aleš Znidarič	Using Electronic Braking System (EBS) for Smart OBM <i>R. MICHAUD</i>  Utilising Dynamic Excursions of Mass (DEM) from On-Board Mass (OBM) systems for monitoring infrastructure and truck suspension conditions <i>R. SACK</i>  Smart OBM in Australia – learnings and insights <i>J. GORDON, G. HILL</i>  Determining the traffic load distribution across a large portion of the road network with short-term B-WIM measurements: A case study of the Republic of Serbia <i>M. HAUTPMAN, R. BRANKOVIĆ</i>	Parallel Session 3  <b>Safety through technology convergence (P11)</b>  <b>Chair</b> Lena Larsson	Performance-based heavy vehicle driver fatigue management trial <i>D. KALASIH, R. LEHEN, B. PEACOCK</i>  Performance analysis of an A-Double in roundabouts using naturalistic driving data <i>A. BEHERA, S. KHARRAZI, E. FRISK</i>  Perspectives on the use of Weigh-in-Motion (WIM) for road safety applications in North America <i>L. GUERSON, T. HAICHERT</i>
Evening Function	5:00 to 7:00 pm (P11)  Panel session & networking event hosted by National Women in Transport		

# Technology Convergence 2023

## Setting the Wheels in Motion: Reimagining the Future of Heavy Vehicles, Roads and Freight



Wednesday 8 November			
Exhibition	All Day      Exhibition Hall (P6, P7 & P8)		
Conference Start	8:30 am      (P10 & P11)		
Plenary Session 2	<b>Measuring Heavy Vehicle Mass: Creating Value By Understanding Different Uses <i>and</i> Users</b> <b>Dr Geoff Allan</b> – Chief Executive, Austroads, Vice President World Road Association (PIARC) <b>Peter Kolesnik</b> – Executive Director, Department of Transport and Main Roads (TMR) <b>Sal Petrocchio OAM</b> – Chief Executive Officer, National Heavy Vehicle Regulator (NHVR) <b>Deborah Walker</b> – Senior Research Engineer, Federal Highway Administration (FHWA) <i>Moderator: Chris Koniditsiotis – President, ISWIM</i>		
Morning Tea	10:30 to 11:00 am      Exhibition Hall (P6, P7 & P8)		
Parallel Session 4 <b>Measuring mass through technology convergence (2)</b> <b>(P10)</b>  <b>Chair</b> Andy Lees	WIM placement on road networks: Optimization models and a proposed deployment process <b>L. FRANCESCHI, C. SOBROSA, G. OTTO, H. VAN LOO, W. REPETTE, A. VALENTE</b>  Use of WIM sensors and geophones to increase the accuracy of weighing systems <b>G. OTTO, L. FRANCESCHI, B. GEVAERD, A. ALMEIDA, C. SOBROSA</b>  Virtual weigh-in-motion: The use of additional datasets to enhance WIM <b>K. LEWIS, C. KARL, R. HEYWOOD, D. WARD, E. DANN</b>  Computer vision: A non-contact approach to low-speed weigh-in-motion <b>J. ZHANG, X. KONG, E. OBRIEN</b>	Parallel Session 4  <b>The road to zero emissions</b>  <b>(P11)</b>    <b>Chair</b> Christopher de Saxe	Strategies for greening cross-border road freight transport, in South Africa <b>N. SOKHETYE, V. TSAKO, S. DYODO</b>  Transporting from the South America’s lithium triangle: Sustainable challenges in meeting the white gold rush <b>A. EFRON, J. GUIVANT, B. DWYER, V. VACAZUR, A. CERÚSICO, O. DIP, G. HUGHES, G. RIMOLDI</b>  Deploying high-capacity transport and use the cost savings to finance zero emission vehicles and their charging infrastructure with intelligent access <b>S. WANDEL, B. KRAAIJENHAGEN</b>  Decarbonising the UK’s heavy goods vehicles: Lessons from the UK for Australia <b>D. AINALIS, C. DE SAXE, J. MILES, D. CEBON</b>
Lunch	12:30 to 1:30 pm      Exhibition Hall (P6, P7 & P8)		
Parallel Session 5 <b>Electrification of heavy vehicles &amp; trailers</b> <b>(P10)</b>  <b>Chair</b> Alejandra Efron	E-Trailer, emission reduction based on electrically propelled trailer <b>J. ABO AISH, J. PAUWELUSSEN, K. KURAL, K. VAN MEELE, M. VAN KLINK, R. KOPPEJAN</b>  Benefit analysis of introducing electric propulsion on converter dollies <b>T. GHANDRIZ, F. BRUZELIUS, B. JACOBSON, L. LARSSON</b>  Axle design as a key factor for greening road freight transport <b>H. KOPFLOW</b>	Parallel Session 5  <b>WIM developments, standards &amp; requirements</b>  <b>(P11)</b>    <b>Chair</b> Deborah Walker	Brazilian guide for performance monitoring of HS-WIM system <b>K. SHINOHARA, G. OTTO, E. GARCIA, A. ALMEIDA, V. TANI, W. REPETTE</b>  Argentinean technical requirements for WIM systems <b>J. JORGE, J. JONES, J. AMADO</b>  Development of a novel weighing digital sensor for further evolution of WIM technology <b>O. FUČÍK, M. JUHAS, J. FUČÍK</b>  Tire width-based screening at a WIM preclearance site <b>D. PRATT, T. HAICHERT</b>
Afternoon Tea	3:00 to 3:30 pm      Exhibition Hall (P6, P7 & P8)		
Parallel Session 6 <b>Latest research into heavy vehicle performance</b> <b>(P10)</b>  <b>Chair</b> John de Pont	Characterisation of vibration response spectra of road transport vehicles <b>M. LAMB, V. ROUILLARD</b>  Investigation on dynamic loads on couplings of heavy high productivity freight vehicles <b>A. BUCKO, D. SIMMS, A. BUCKERIDGE</b>  The ARTSA-i heavy vehicle brake calculator <b>P. HART</b>  Modelling of articulated heavy vehicles for computation of accurate safe operating envelope for yaw stability <b>U. ERDINC, M. JONASSON, M. KATI, B. JACOBSON, J. FREDRIKSSON, L. LAINE</b>	Parallel Session 6  <b>Global adoption of intelligent access</b>  <b>(P11)</b>    <b>Chair</b> Chris Walker	Two decades of intelligent access in its birthplace of Australia – where we’ve been and where we’re going <b>G.HILL, C. KONIDITSIOTIS</b>  Results from CEDR-work done around intelligent access <b>T. ASP, L. AARTS</b>  Intelligent access pilot for special road transport <b>G. VAN STEKELENBURG, N. KNEPPERS, R. KUSUMAKAR, K.KURAL, R.HULKOTI</b>  Lessons learned from the pilot intelligent access for special road freight transport in The Netherlands <b>M. OTTO, L. AARTS</b>
ISWIM General Assembly	5:00 to 5:45 pm      (P10)	HVTT Forum Board Meeting (1)	5:00 to 5:45 pm      (P11) (for HVTT Forum Board members only)
Evening Function	6:30 to 10:30 pm (M3 on Mezzanine Level)	Gala Dinner	

# Technology Convergence 2023

## Setting the Wheels in Motion: Reimagining the Future of Heavy Vehicles, Roads and Freight



Thursday 9 November					
Exhibition	All Day Exhibition Hall (P6, P7 & P8)				
Conference Start	8:30 am (P10 & P11)				
Workshop	National Automated Access System (NAAS) Functionality Requirements Workshop				
Morning Tea	10:00 to 10:30 am Exhibition Hall (P6, P7 & P8)				
End-User Session/ Workshop 1 (P10)	Innovations in Intelligent Telematics and On-board Weighing Technologies  Smart OBM - The Australian Weigh for On Road Pressures  Dynamic Excursion of Mass - A Newtonian Approach  Optimising Vehicle Overload Control: Best practices in Strip Sensor Applications  Development of a Novel Weighing Digital Sensor for Evolution of WIM Technology  Structural Bridge WIM Diagnostics	V-DAQ  AIRTEC  TRAMANCO  INTERCOMP  CAMEA  CESTEL	End-User Session/ Workshop 2 (P11)	Application of Innovative Technologies  WIM Systems in Poland  Ukraine Weigh-In-Motion Network for Automatic Enforcement  How will VanJee LiDAR Provide Valuable Data for WIM systems?  Innovations in Intelligent Telematics and On-board Weighing Technologies	IRD  APM  Q-FREE  VANJEE  V-DAQ
Chair Andy Lees			Chair Hans van Loo		
Lunch	12:30 to 1:30 pm Exhibition Hall (P6, P7 & P8)				
Parallel Session 7 <b>Matching vehicles with roads</b> (P10)	History and future of EU HDV weights and dimensions policy: Insights in policy preparation T. BREEMERSCH, I. KNIGHT, M. RODRIGUES  Heavy Vehicle Access Management System (HVAMS) - Tasmania M. ELISCHER  Moving away from black boxes on wheels: The path to better policy information on the impact of freight transport on road assets F. SCHMIDT, O. QUOY, L. AARTS		Parallel Session 7 <b>Using mass technologies to optimise infrastructure (1)</b> (P11)	Artificial intelligence. Using machine learning to monitor OSOM heavy vehicle traffic on bridges M. BUCKLEY, A. SINHA, K. LEWIS, M. BERENI, T. WANG, S. LYNCH, M. HALDANE  Cataloging method and evaluation of pavement structure stability for HS-WIM system installation A. ALMEIDA, G. OTTO, S. SANTILLAN, K. SHINOHARA, A. MOROSSINO, F. MORI, V. TANI, A. VALENTE  The temperature dependence of the dynamic amplification factor J. KALIN, A. ŽNIDARIČ, A. ANŽLIN, D. HEKIČ  Towards a more practical bridge monitoring system using a novel bridge-WIM for multiple-vehicle events A. MOGHADAM, R. SARLO, M. ALHAMAYDEH	
Chair Thomas Asp			Chair Hans van Loo		
Afternoon Tea	3:00 to 3:30 pm Exhibition Hall (P6, P7 & P8)				
Parallel Session 8 <b>Developments in performance based standards</b> (P10)	A comparison of the Australian and New Zealand approaches to PBS J. DE PONT  Simulations and field testing of super-single tyres for PBS A. BUCKO, D. SIMMS, B. CHUANG  Auxiliary braking. A performance based standard proposal S. SAAVEDRA  Australian performance based standards: Past, present and future K. HASSALL, L. BRUZSA, A. GIBSON		Parallel Session 8 <b>Using mass technologies to optimise infrastructure (2)</b> (P11)	Fusion of WIM and permit data S. STAWSKA, J. CHMIELEWSKI, A. NOWAK  Structural analysis using Bridge Weigh-In-Motion (B-WIM) system K. SHINOHARA, E. GARCIA, R. PINTO, P. JUNGES, W. REPETTE, A. VALENTE  Model updating of a multi-span highway viaduct with data from bridge weigh-in-motion sensors D. HEKIČ, A. ANŽLIN, A. ŽNIDARIČ, J. KALIN, P. ČEŠAREK  Bridge monitoring and data-driven structural asset management R. HEYWOOD, T. PAPE, D. WARD, P. SHAW, A. VOLL, M. HALDANE	
Chair Karel Kural			Chair Chris Koniditsiotis		
HVTT Forum General Assembly	5:00 to 5:45 pm (P10)				
Evening Function	6:30 to 10:30 pm (The Greek Club, 29 Edmondstone St. South Brisbane)		Social Dinner		Sponsored by 

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### Reimagining the Future of Heavy Vehicles, Roads and Freight



Friday 10 November			
Exhibition	All Day                      Exhibition Hall (P6, P7 & P8)		
ISWIM Board Meeting	7:30 to 8:45 am            (TBC) (for ISWIM Board members only)		
Conference Start	9:00 am                      (P10 & P11)		
Plenary Session 3	Leveraging Technology Convergence – Where to From Here?  Micheal Caltabiano – Chief Executive Officer, National Transport Research Organisation (NTRO) Gary Mahon – Chief Executive Officer, Queensland Trucking Association (QTA) Anthony McMullan – Chief Executive Officer, Truck Industry Council (TIC) Aleš Žnidarič – President, Forum of European National Highway Research Laboratories (FEHRL) Moderator: Loes Aarts – President, HVTT Forum		
Morning Tea	11:00 to 11:30 am    Exhibition Hall (P6, P7 & P8)		
Parallel Session 9  Road network access & utilisation  (P10)    Chair Gavin Hill	A review of more than a decade of research and field tests on longer vehicle combinations in Sweden that supported road approval  S. KHARRAZI, L. LAINE, L. LARSSON, J. SANDIN, B. JACOBSON, T. ASP, O. BAGDADI  High productivity freight vehicles for the physical internet  R. THOMPSON  Automating route mapping for PBS vehicles  M. COLEMAN, S. BUXTON, R. IBRAHIM  Comparative analysis of truck volumes from traffic counts and probe-based data: A case study in the Winnipeg Metropolitan Region, Canada  C. ZROBEK, G. GRANDE, J. REGEHR, B. MEHRAN	Parallel Session 9  Using WIM for compliance & enforcement  (P11)    Chair Rish Malhotra	A comparison of axle weight masses from a low-speed weigh-in-motion scale and a static weighbridge scale for the purpose of broadening law enforcement efforts  P. BINDA  DNIT technological model for direct enforcement on Brazilian federal highways  G.OTTO, D. MELO, B. JUNIOR, A. ALMEIDA, W. REPETTE, A. VALENTE  Addressing the reliability challenges of High-Speed WIM (HS-WIM) for direct enforcement  T. KONIOR, J. IZYDORCZYK, A. RYGULA, L. GUERSON  Challenges of applying and improving WIM systems for weight enforcement in Republic of Korea  D. LEE, J. LEE, H. KIM, T. KIM, Y. JUNG, J. KIM
Lunch	1:00 to 2:00 pm            Exhibition Hall (P6, P7 & P8)	HVTT Forum Board Meeting (2)	1:00 to 2:00 pm            (P11) (for HVTT Forum Board members only)
Parallel Session 10  Evaluating heavy vehicle performance & safety  (P10)    Chair Les Bruzsa	Feasibility study on the application of modular combination vehicles in China road transport  Z. HAO, M. HARBORN, T. XU  Improving concrete pump road safety assessment methods and standards  M. COLEMAN, B. COLEMAN, J. ALLWRIGHT, J. UPADHYAY  An open assessment tool for standardized performance measures of long combination vehicles  B. JACOBSON, S. KHARRAZI, N. FRÖJD, T. GHANDRIZ, O. BAGDADI	Parallel Session 10  Optimising freight supply chains  (P11)    Chair Loes Aarts	Coronavirus and road freight supply chains in Australia – impact and implications  S. JONES, J. RIVER-GONZALEZ  Farm Gate – a case study in the value of telematics and public policy discourse  B. COLEMAN, P. PULVER  High-fidelity in-service performance evaluation of heavy goods vehicles in South Africa  M. ATKINS, C. DE SAXE, A. KAMDAR, X. NA, L. KHUMALO, D. AINALIS, D. CEBON
Afternoon Tea	3:30 to 4:00 pm            Exhibition Hall (P6, P7 & P8)		
Conference Summary & Closing	4:00 to 5:00 pm            (P10 & P11)		

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