

## Communications Release

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For immediate release

### Industry research: Investigating the Potential for Artificial Intelligence and Blockchain Technology to Enhance the Transport Sector

The transport sector is buzzing with the promise of rapid advances in artificial intelligence and machine learning, and is getting more and more curious about the emergence of Blockchain and Cryptocurrencies. Although these technologies are touted to offer fantastic value not previously possible it is not clear how much of these claims are fact or fiction. The SBEnrc has been charged by its partners from State Government, Industry and research institutions from around the country to find out what is real and what is for now still science fiction.

Claims such as spending on artificial intelligence technologies will reach nearly \$60 billion by 2021 by the International Data Corporation<sup>1</sup>, and that by 2027 some 10 percent of global GDP, worth US\$8 trillion, will be Blockchain-based by the World Economic Forum<sup>2</sup>, suggest that these technologies will rapidly be deployed in the coming decade. The question is which use cases for each technology warrant serious consideration for deployment by Transport Agencies?

Research as part of the Sustainable Built Environment National Research Centre's (SBEnrc) *Exploring the Potential for Artificial Intelligence and Blockchain to Enhance Transport* project has identified that there are a number of possible use-cases for AI and Blockchain that are likely to deliver real value.<sup>3</sup> Working closely with industry and government partners the project has identified a short list, shown below, that stand to deliver multiple benefits and warrant further investigation.

#### *Artificial Intelligence Use-Cases*

- Identification of Network Characteristics (vehicle data, engineering data, and hazards).
- Traffic Optimisation (Management and Signalling) (Interruptions to flow, predictive congestion management, based on real time conditions).
- Vehicle Prioritisation (Emergency and Mass Transit).
- Asset Management (including vehicles, IoT devices, lights, communications infrastructure).

#### *Blockchain Use-Cases*

- Real Time Road User Pricing (Charging for time of day and road type usage).
- Establishing Identification (Digital driver's licences and vehicle ownership).
- Enhanced Freight Tracking and Authenticity (Real time location and confirmation of delivery).

Following consideration of the level of maturity of the technology, level of uptake and proven value creation, costs involved, and the data requirements of each option, the project will now undertake a deep dive on the use of artificial intelligence for traffic optimisation and the use of Blockchain technology for enhanced freight operation, considering risks and rewards, strategic considerations and supporting policies. The project will also develop a roadmap to trial the combination of elements of both to deliver mutual benefits as part of a case study with the Fremantle Port Authority and Main Roads Western Australia.

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<sup>1</sup> Shirer, M 2017, 'IDC Spending Guide Forecasts Worldwide Spending on Cognitive and Artificial Intelligence Systems to Reach \$57.6 Billion in 2021', International Data Corporation, Press Release 25 September 2017.

<sup>2</sup> WEF 2015, 'Deep Shift: Technology Tipping Points and Societal Impact', *World Economic Forum*, September 2015.

<sup>3</sup> Hargroves, K., Conley, D., Emmoth, E., Warmerdam, S, Kahindi, N., Cui, F., and Spajic, L. (2019) 'Investigating the Potential for Artificial Intelligence and Blockchain Technology to Enhance the Transport', Sustainable Built Environment National Research Centre (SBEnrc), Australia.



*“We are exploring new technologies to develop innovative solutions to manage the transport network more efficiently and effectively with a real time focus.”* says the Project’s Steering Group Chair Dr Ken Michael AC.

The research project has been developed with funding and support provided by Australia’s Sustainable Built Environment National Research Centre (SBEnc) and its partners. Core Members of SBEnc include Aurecon, BGC, Queensland Government, Government of Western Australia, New South Wales Roads and Maritime Services, Curtin University, Griffith University and RMIT. The research is led by Dr Karlson ‘Charlie’ Hargroves, Curtin University, Professor Bela Stantic, Griffith University and Professor Jason Potts, RMIT.

#### **About the SBEnc**

The Sustainable Built Environment National Research Centre (SBEnc) is the successor to the CRC for Construction Innovation. Established on 1 January 2010, the SBEnc is a key research broker between industry, government and research organisations servicing the built environment industry. SBEnc partners include: Aurecon, BGC, Government of Western Australia, Queensland Government, New South Wales Government, Curtin University, Griffith University and RMIT University.

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