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MOVUS: turning 'dumb' machines into 'smarter machines'

Abstract: MOVUS is a Brisbane-based engineering company that created the world's first self-installed FitMachine with AI powered sensors. This technology provides remote condition monitoring which allows users to proactively manage, and maintain their machine fitness in a cost-effective and environmentally friendly manner. In just 5 years, MOVUS' leverage of artificial intelligence and machine learning has contributed to the running of profitable and sustainable industries both locally and internationally.

Keywords: MOVUS FitMachine, remote condition monitoring, AI-powered sensors, machine fitness, sustainable industries.

1. The success story

MOVUS is a University of Queensland (Australia) engineering company that is using AI to dramatically transform industrial machine management and productivity, whilst endeavouring to significantly reduce the negative impact that industrial emissions have on the planet. Besides minimising costs through machine efficiency, the FitMachine is also improving the competitiveness of subject matter expertise (SMEs) by allowing them to get ahead of unseen production slowdowns. Currently, the company has thousands of active FitMachine units in over 14 countries, performing 24/7 real-time equipment health checks and helping preserve the Earth's precious energy resources.

2. How did we start

MOVUS was founded through a collaboration amongst friends with complementary engineering, technology and consultancy backgrounds: Brad Parsons as CEO & Founder, with Michel Lamarre and John Gardner as Directors & Co Founders. Brad explains the genius behind the establishment of the company as follows: *"The motivation for founding MOVUS came while I was working as a consultant on a few massive automation projects where I recognised that industrial machines drive our economy but are one of the largest contributors to environmental emissions."* He emphasised that *"what struck (him) was that 2.4 billion electric motors use 43% of the world's electricity, yet fewer than 3% are actively monitored."* This astute observation prompted the MOVUS Founders to turn their attention to industrial machine technology, which had remained unchanged for decades. Parsons articulates that the establishment of MOVUS is

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best articulated under the rationale that “... combining advanced technologies like AI, Cloud and IOT, can reduce costs, while improving productivity and significantly reduce industrial emissions...”. Ultimately, MOVUS’s mission is to combine consumer simplicity with artificial intelligence to transform ‘dumb machines’ into ‘smarter machines’.



Figure 1. The MOVUS team.

3. Our technology

MOVUS’ FitMachine is the world’s first self-installed, continuous condition monitoring sensor for industrial assets. Its simplicity belies the deep insight it provides into asset fitness, and the impact that maintaining healthy machines can have on an organisation and on the environment. The addition of artificial intelligence and machine learning on the reporting platform enables predictive analysis of machine behaviour to notify users through updates and alerts ahead of costly equipment failure. Unlike most other devices and vibration monitors, MOVUS uses a patented mix of AI sensors to detect early warning signs of equipment malfunction. The technology identifies failure long before it is perceptible via other sensors, or physical inspection.

4. The journey so far

In 2015 MOVUS participated in the Universities’ Ventures ilab Accelerator program as a startup company after which they secured seed funding from key investors including Blackbird Ventures, Skip Capital, Telstra Ventures and Aequora Capital. In 2018, the University of Queensland became MOVUS’s first user, investor, and customer for continuous monitoring of heating, ventilating and air-conditioning equipment. Whilst MOVUS continues to work with The

University of Queensland, their clientele have expanded to include Wesfarmers Chemicals, Melbourne Water, Unitywater, and Bombardier Transportation among others.



Figure 2. MOVUS FitMachine installed on equipment.

In just 5 years, the cost-saving impact of the MOVUS' FitMachine has been reported in both large and small industries, where the technology has been reported to eliminate the burden that inefficient machines put on the environment, maintenance teams and the organisation's operational costs. For example, a Central Queensland coal mine reported that the FitMachine saved the company around \$1.7 million in lost production, and drastically improved worker-safety by reducing physical inspection in dangerous areas of the mine which pose a significant health and safety risk. Another Brisbane-based food and beverage manufacturing plant reported that MOVUS' efficient technology helped them avoid a downtime incident that could have cost up to \$300,000 in lost production time.

MOVUS' FitMachine has secured prestigious partnerships and won numerous awards. The latest recognition was at the 2021 Australia-New Zealand SAP Accelerator Program, where they were one of two Australian start-up companies considered to have a revolutionary enterprise specializing in predictive analytics, industrial assets management, workers' safety, and wellness. Other awards MOVUS has received include the 2019 Future of Mining Startup of the Year, the 2019 Lord Mayor's ANZ High Growth Startup of the Year, the KPMG Energise Award in 2017, as well as the Tech23 Collaboration Award (sponsored by the Commonwealth Scientific and Industrial Research Organisation (CSIRO)) in 2016.

Currently, the company has thousands of active FitMachine units in over 14 countries, in various energy and natural resources sectors including transportation, oil & gas, mining, energy, manufacturing, water & utilities, agriculture, and building & facilities industries. MOVUS

collaborates with a strong board of advisors from Blackbird Ventures, Skip Capital (family office of Scott Farquhar of Atlassian), Telstra Ventures, and Andy Greg (one of the Bechtel founders) among others.

5. Look to the future

Parsons insists that MOVUS endeavours to stay committed to maintaining machine efficiency, whilst acknowledging the delicate balance that exists between industry and ecology, where increased development does have a substantial impact on nature. Therefore, looking into the future, the MOVUS team believes in a world where balance can be achieved by using advanced AI and analytics to provide real-time data to all stakeholders, enabling decision making to be also done in real-time. *“This is the world we are working to create, and we are excited to be part of the solution”*, says Parsons. Overall, MOVUS hopes to continue to grow the company globally through product development, expanding its team, and increasing partnerships.

The company



MOVUS

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Investment Rounds (collected in 16.08.21)

Seed | May 2016 | \$0.4m

Seed | March 2017 | \$0.5m

Series A | March 2018 | \$4.5m

QBDF | June 2019 | \$0.5m

QBDF | Sept 2019 | \$0.25m

Series A | May 2020 | \$2.5m

Main facts (collected in 16.08.21)

The Company started in 2015, currently employs 23 people and their next milestone is to continue to grow the company globally.

Dr Sithembinkosi Dube is an Honorary Research Fellow at Macquarie University where she is affiliated with the Child Language Lab and works as a tutor in the Linguistics department. She works with a group of researchers that use eye-tracking and EEG technology to understand language behaviour in typical and atypical populations and was recently nominated for a teaching award under the Student Nomination Award category.



Dr Thembi Dube is also a sessional lecturer in the Linguistics department at UNSW where she oversees convening of lectures and tutorials for Undergraduate and Master's students studying Psycholinguistics, Second Language Acquisition, and Phonetics & Phonology. She has used her expertise to motivate students to apply their knowledge to solve real life problems, for example through forensic linguistics, computational linguistics, and speech/audiology remediation.

Dr Thembi Dube holds an Honors Degree and MPhil in Linguistics from the University of Zimbabwe, an MSc in Clinical Linguistics from Potsdam University, and a PhD in Linguistics from Macquarie University.