

Disrupting transportation management with the world's only Enterprise-Wide Transport Solution.

MONITOR. MANAGE. MAINTAIN. MITIGATE.



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The Why

Monitor. Manage. Maintain. Mitigate.

The Trillion Dollar Infrastructure **Program:**

The OECD has applied a capital value on the global road network of over 1 trillion Dollars and each year \$240+ Billion spent on new road programs and a further \$98+ Billion is used to maintain already constructed infrastructure]. But the impact on our social and economic wellbeing is much deeper, with the WHO reporting 1.3 million lives are lost on the very same network each year, and up to 50 times that number are left with non-fatal injuries. Road fatalities are the highest contributor to death for the next generation aged 5-29 years. Conflicts can contribute cost of up to 3% of a nations GDP as well as the human and social impact through our communities.

Traditional methods have served us well but simply can't keep pace with the rapidly changing network:

Our Road Networks have changed exponentially over the last several years with increased User Types emerging like Share Riding vehicles, Scooters, e-bikes, and a reduction in public transport usage through COVID. The global state of transportation management is reactive in nature, with personal injuries and fatalities the active unit of this quantitative measure to prompt action. And a corresponding period post modification needs to occur to validate the success or not of the initiative. For decades this has been the only practice available to Transport Professionals and Government agencies, with pre-collection periods of 2-5 years, and the corresponding post, taking the end to end to between 4 to 10 years to validate.

Infrastructure Investment is prioritized and justified by legacy means:

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With growing state and national budget deficits - where does the valuable infrastructure investment get allocated. There needs to be a faster, more proactive, predictive way to support the Transport Professionals in their decision making based on actionable evidence-based insights that embrace latest in technologies that have over 25 years of academic and professional application by the AMAG Founders around the globe.

Design by world leading authorities in Transportation for Transportation **Professionals:**

Advanced Mobility Analytics Group (AMAG) has developed the world's most evolved AI and video analytics-based Safety and Mobility Alerts in Real Time (SMART) Digital SaaS(Software as a Service) Platform for Transportation Professionals, delivering unparalleled access to actionable insights that will address current and the future evolution of a modern transport network across the broad enterprises charted to for network planning, management, and operations. Designed by world leading practitioners, for global application with decades of research and application supporting this most disruptive advancement in road operational and safety insights in a generation. We are not transportation or civil engineering

consultants, our commitment is to

To deliver the most valuable, accessible, and actionable analytics and insights for transport professionals globally.

Simon Washington - CEO / Co-Founder AMAG

Locations Improved 21

Crashes Eliminated 686

Injuries Prevented 11

Lives Saved 22









How the SMART SaaS Platform is disrupting an industry:

AMAG technology is predictive and was initially developed to modernise the Deep Dive Safety Analysis that deployed before and after network modifications. Designed to identify crash risks so they can be addressed before crashes occur. The platform makes use of video analytics, Al, Deep Learning, and locally calibrated relationships between road user classifications monitoring for clusters of near misses.

Through our commitment to working with our partners in transportation this application has evolved into the only solution that can service the enterprise-wide requirements of any entity charted with ownership of a road network, moving the analogue Survey methods to the cloud, and cracking the code on real time – continuous monitoring of a network.





SMART Transport Analytics Platform

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This horizontal expansion through our **SMART Platform** leverages the infinite scale and efficiencies of Software as a Service (SaaS) to allow in both ease of deployment, always on the latest software readily available from any internet browser on any device.

The **SMART SaaS Platform** is where the database of transportation data is housed, accessible based on geographical map reference points, it is also the one location for all historical relevant data to be uploaded and associated and searchable.

The power is in the AMAG SMART AI with Deep Machine Learning, that not only ingests gigabytes of data, but processes against numerous configurable variables to produce actionable

AMAG SMART Operations **EDGE Camera Solutions**



The SMART Digital Platform enables transport management agencies to Monitor, Manage, Maintain, and Mitigate risks associated with Mobility of all road users on their transport networks. The platform is fundamentally unique compared to other available technologies owing to its unique characteristics that support:

- Rapid and reliable crash risk assessment for all road users
 - End-to-end transport network risk assessment coverage
 - SaaS delivery, with Platform that can be accessed repeatedly to address different safety queries
 - Both real-time and diagnostic (retrospective)

road user safety analytics modules

- Risk and operational performance information for all types of road users
- Operations (real-time monitoring), maintenance (deterioration of road safety), management (black spot identification and rectification), and mitigation

- (improvement) functions of government agencies
- Alert (or Exception) driven transport network safety and operations monitoring alerting system mangers when operations are outside of 'normal' operations
- Extensive risk and safety benchmarking for valuable comparative analysis
- Crash forecasting under current and future road-user conditions
- metrics related to crash research • State of the art video
 - analytics with marketleading tracking and classification

• Multiple conflict-related causation based on extensive

• Expert system for uniquely identifying potential countermeasures

• Developed by transport experts for transportation experts.

SMART Products at a glance

The SMART SaaS Platform is a subscription-based service that provides leading edge Al-driven analytics to transportation professionals from engineering consultancies to all levels of government around the globe. It disrupts traditional transport planning, operations, and management applications with highly evolved products targeted to Safety, Operations, Surveys, Infrastructure, and Pavements. It can be configured using Edge-Enabled Cameras and cloud, or a server-based system. AMAG delivered the only true

solution that can service the end-to-end requirements the modern road network today and for tomorrow. Across all AMAG world leading products, the ability to pull elements of insight and combine easily with the inplatform report-generation feature as standard.

SMART **SURVEY**

The SMART SURVEY Product is used to support transport planning and operations functions. It provides platform access to reliable turning movement counts and road user speeds across a variety

of road-user classes identified using reliable and tuned AI algorithms. These counts and speeds are downloadable in various formats for use as inputs to and support for micro and macro-scale

modelling tasks. This date is held historically to provide valuable insight in how the network is changing overtime.

The SMART SAFETY Product is used to support safety and risk management of transport infrastructure, first identifying over 8 network user types, from PEDS (most vulnerable) to Heavy Vehicles across and not limited to signalized intersections, roundabouts,

mid-blocks, shared-use paths, level crossings, and school zones. SAFETY contains over 20 dashboards that include operations (speeds, flows, violations), risk visualizations (heat maps, road user trajectories), crash forecasting, benchmarking

(blackspot analysis), evaluations (before-after and with/without analysis), and countermeasure shortlisting via an expert system. SAFETY also contains an extensive report-generation feature.

SMART OPERATIONS

The SMART OPERATIONS Product is used to underpin the transport network operations management functions, including continuous monitoring of flows, speeds, incidents, conflicts (crash risk), and violations (e.g., speeding,

red-light running). SMART **OPERATIONS** is a powerful alert generation tool, with user-defined alerts established to monitor video streams using AI to identify "critical" situations such as unusual flows, speeds, incidents, violations, or crash

The only Enterprise-Wide Solution for your Road Network

Unique features of AMAG SMART platform

- Customized SaaS allows CUSTOMERS to explore and examine infrastructure risk & operational profile
- Whole of network proactive safety management
- Forecasting of future crashes (frequency and severity)
- Continuous, diagnostic, and real-time safety modules delivered via edge-enabled, ultra-high definition cameras
- Al-enabled expert system to link site risk and potential countermeasures
- Continual development, validation and refinement of core predictive algorithms

- Unique features unavailable in other platforms (e.g. multiple risk metrics, violations, EVT crash prediction, etc.).
- Benchmarking: How safe is this intersection compared to others, regionally, nationally, internationally?
- "Eyes on the Road" Alert System
- World-leading safety experts underpin AMAG product development.
- · Commitment to longterm development and evolution of the platform
- Locally calibrated algorithms for accurate crash and risk prediction and insights

risk. Alerts are managed in a variety of useful ways within the OPERATONS product, with configurable settings for any application from setting up user/management teams, individuals, and recording of management actions per alert.

- Development of many key surrogate measures needed to measure and reliably predict crash risk
- Predictive analytics needed to enable deep learning of crash causation (now acquired from 21 cities globally)
- Mapping of safety improvement strategies (investments) to sitespecific crash risks
- State of the art video analytics platform for supporting safety analysis
- Collective 70 years of know-how of domainleading company founders in understanding transport crash risk

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Video & predictive analytics vs other road safety tools

ideo and predictive analytics provides insights into road user risk that other available tools and technologies cannot. These features enable engineers to mitigate crash risks before they

result in accidents, preventing unnecessary deaths and injuries. They also provided unprecedented insight into geometric and operational features that contribute to crashes.

	AMAG Video Predictive Analytics	Road Safety Audit	Black Spot Programs	Crash Database Driven Analysis (e.g. Network Screening)	Star Rating Approaches
Proactive	~	~	-	_	~
Quantitative	~	-	~	~	-
Spatially Accuracy (to support diagnosis)	~	~	~	~	-
Temporally Accuracy (to support diagnosis)	~	-	-	-	-
Predictive	 	-	-	-	~
Road user exposure (all users)	 ✓ 	-	-	-	-
Behavioral evidence (cumulative, objective)	 	-	-	-	-
Geometric evidence (cumulative, objective)		~	~	~	
Operational evidence (cumulative, objective)	~	-	-	~	-

Partners

AMAG's contract and MOU engineering and technology partners work together to ensure the highest value delivery to end-users. These vital partnerships enable AMAG to deliver complete solutions to SMART Platform end users.

Impact of AMAG **Technologies**

The success of past projects of AMAG Founders has been impressive and has motivated further development and commercialisation. A past project to evaluate Leading Pedestrian Intervals in Canada showed a 20% reduction in pedestrian critical conflicts (conflicts related to crashes). A large intersection improvement program focussed on pedestrian safety in the US showed a 67% reduction in conflicts and 19% reduction in crashes. Cycleway improvements in Canada showed significant reductions in the frequency and spatial distribution of critical conflicts involving bicyclists. Urban Smart Channels

2021

The City of Bellevue, WA for

installed at 3 sites in Canada to improve sight distance of merging vehicles resulted in between 33% and 57% reduced critical conflicts, and between 34% and 60% reductions in crashes. The predictive analytics technology provides quantitative insights into the operations and risk across all road users that is not available from other products.

The City of Bellevue was a recipient of 2021 National Road Safety award from the US Secretary of Transport for the application of Video Analytics in their Vision Zero initiatives.

The Team

AMAG is based in Brisbane Australia, with team members residing in Canada and the US. Currently AMAG consists of a core of 13 individuals, consisting of road-safety engineers, road operations engineers, software developers, and executive officers. The leadership team consists of 3 founders, 3 C-Level individuals including Executive, Operating, and Technical Officers, and a Vice President of Product Development and Engineering.

George Fidler, Chief Operating Officer, has been in the technology & entertainment industries for over 2 decades and has held several senior

management positions in some of the world's leading interactive entertainment companies, including Electronic Arts (EA Sports), Sega and KIXEYE. He has been involved in numerous successful start-ups.

Dr Md. Mazharul (Shimul) Haque, Chief Quality Officer and Co-Founder, is a specialist in statistical and econometrics applications in transport

engineering and traffic safety. He has secured over \$2.1 million research funding from the public and industry sectors between 2014 and 2018 and has co-authored more than 80 peer-reviewed research articles.

Simon Washington, Managing Director and Co-Founder is a Civil Engineer who has held management and leadership positions as SafeTREC Director

(UC Berkeley) and Head of the School of Civil Engineering (University of Queensland). He is a globally recognized authority in road safety, with more than 13,000 citations to his work. He has held academic posts at Georgia Tech, Univ of Queensland, QUT, the University of Arizona, Arizona State University, and UC Berkeley. In 2019 he was recognised by the Australian as the top Transport Academic in Australia.

Professor Tarek Sayed, Technical Advisor and Co-Founder has won numerous awards: UBC Distinguished University

Scholar, ITE Wilbur Smith Distinguished Transportation Educator, Canadian Society of Civil Engineering Sandford Fleming, Transportation Association of Canada Academic Merit, Transportation Association of Canada Gilchrist Medal and several best paper and teaching awards.

Jared Keller, Vice President of Operations has more than 10 years of experience developing SaaS products built on a foundation of machine-learning

and AI. Within Conversica (conversica.com) he led engineering and development to create an awardwinning sales automation platform powered by AI - from bootstrapped start-up to Series A and B funding.

Niloofar Aliakbarzadeh is AMAGs head of vision analytics and engineering. She has a bachelor's degree in computer science, and manages a team

of analytics engineers within AMAG to deliver world leading video analytics.

Mohsin Rahman, Vice President of Product Development & Engineering, is a Microsoft Certified

Technology Specialist having 14+ years of experience working as Software

Engineer and Solution Architect across small and large enterprise companies. Has produced many software and enterprise SAAS applications that are used by millions of users globally everyday: UK government, Lafarge Asia, Telenor, Orascom, Virgin Australia, TechnologyOne just to name a few.

Craig Lyon, General Manager North America has more than 30 years of experience in road safety consulting. He has participated in several National

Cooperative Highway Research Program studies, has co-authored numerous technical papers, and internationally recognised for his contributions to road safety. Advanced Mobility Analytics Group Pty Ltd (AMAG) aims to be the world leading provider for proactive Transport analytics and management, applying more than 70+ years of cumulative road safety knowledge to develop the only complete Transport management suite of modules from Safety, Operations through to Infra-structure. Using Video Analytics, Artificial Intelligence (AI), Deep Learning, and Advanced Econometrics, AMAG has solved the challenge of predictive analytics for road safety, and during the past decade the founders have proven the methodology and technology through research, refinement, testing, and validation with 23 cities across 8 countries.

AMAG is focused on what we do best, road operational and safety insights through the best analytics solu-tions, developed by the best people. To deliver the best end-to-end SaaS Solution to road safety practitioners, we are partnering with the absolute best technology providers and engineering consultancy service providers across the globe.

Find out more https://amagroup.io

Contact Information

The headquarters for Advanced Mobility Analytics Group Pty Ltd is currently Brisbane Australia. AMAG is forging partnerships with companies in North America, Australasia, and Europe. The founders have worked in 8 countries globally and are forming additional partnerships currently. Interested SMART Platform users, investors, partners, collaborators, or clients can contact AMAG through the following channels:

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