Intelligent Warnings

A twenty-first century approach to encouraging protective action in emergencies

Jacob Riley

About me

- Senior Advisor, Public Information and Warnings
- Bachelor of Emergency Management
- Experience in frontline, regional, state and national environments
- Background in public information, resilience, operations, emergency planning, intelligence, assurance and more
- Works primarily in the State Control Centre Public Information Section during the response phase
- Experience at the incident tier Public Information Section

SES

Emergency Services Foundation

- Established after the Ash Wednesday bushfires in 1983
- Operated as a trust to provide immediate support for those who suffer hardship as a result of the death of a family member or injuries sustained in the line of duty
- Provides educational scholarships
- Delivers the annual Emergency Management Conference
- Rethink of strategic direction – greater focus on wellbeing

SES

ESF Scholarships

- Provide an opportunity for members of Victorian Emergency Services to undertake a study tour that will lead to enhance the way we operate in Victoria

- Granted annually

- In 2019, priority will be given to applications that address issues of mental health and wellbeing, diversity and inclusion and volunteering

- Apply!

Aim

- To explore the impacts new and emerging technologies, including artificial intelligence (AI) and automation, may have on the emergency management sector, particularly in relation to emergency information and warnings

- To ensure we can issue genuinely timely, tailored, relevant, accessible and consequence-based warnings

Interviewees

- Queensland University of Technology
- Bureau of Meteorology
- Public Safety Business Agency Queensland
- University of Georgia
- University of Kentucky
- Centers for Disease Control and Prevention (USA)
- University of Sydney
- Metropolitan Transportation Authority, New York
- University of Maryland
- START Consortium
- And more!

How do we currently operate?

- We're already leveraging technology to help us gather information, share intelligence and warn communities
- Significant opportunities to enhance how we do things
- https://www.youtube.com/watch?v=_6s3V7GbAbE

The Problem

- The Victorian approach to the delivery of public information and warnings is robust and leads the country in many respects

- Despite this, when at-risk individuals do receive warnings, existing research highlights they are unlikely to immediately act, and instead, will seek out further information and take time to process the information to determine whether any action is required

- May include talking with family, friends, neighbours or colleagues, resulting in a delay before protective action is taken

- We need to minimise the likelihood of delays infiltrating our decision-making and warnings dissemination process

Outcomes

Desktop review of existing literature, supported by informal discussions and semi-structured interviews highlighted AI and automation could:

- Greatly assist in rapid impact emergencies (flash flooding and severe thunderstorms)
- Support tailoring of language and content in warning products according to affected communities and likely consequence
- Minimise warning issuance delay
- Maximise the effectiveness of decision-making

Recommendations

1

Victorian EM sector should prioritise investment in real-time, data sharing across separate platforms, such as EM-COP and hazard-specific applications including FloodZoom and the Bureau of Meteorology (BOM) Warnings Entry Tool (WET), to support decision-making and minimise warning issuance delay.

Recommendations

2

Victorian Public Information Working Group and Victorian Intelligence Capability Group should investigate development of a decision support tool, which would digest real-time data, overlay it with hazard predictions and our pre-determined business rules/triggers.

Output could include a suggested warning level, polygon extent and key safety messages.

Recommendations

3

EM sector should scope opportunities to foster collaborative relationships with graduates, experts and relevant institutions focussed on data and analytics, AI and robotics, enabling the sector to better leverage opportunities being exploited by other like-industries, such as aviation, policing and transport.

Recommendations

4

VICSES and the broader emergency management sector should continue to work in partnership with the Bureau of Meteorology as part of its long-term project to review, refine and enhance its service delivery arrangements for warnings at a national level, with a particular emphasis on shifting towards impact-based warnings.

SES

Recommendations

5

VICSES should to continue to work with the University of Georgia (UGA) to conduct a cross-national research project (US – Italy – Australia) focussed on risk communication in the context of natural disasters and emergencies.

Recommendations

6

VICSES should continue to work with the Queensland University of Technology and the Bushfire and Natural Hazards Cooperative Research Centre across projects considering the effectiveness of warnings and risk communication more generally, whilst advocating for greater research into the role of AI and automation.

Any other ideas?

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