ARTIFICIAL INTELLIGENCE
ETHICAL COMMAND DILEMMAS

Italian avalanche response; Public communications during London terrorist attack; IEDs in Iraq; Evolutions in medicine, a tactical medic’s perspective; Virtual reality; Scanning risk landscape horizons; Role of lawyers in a crisis; Drones & robotics; Disaster epidemiology; Climate change & security; EENA & Waze pilot project
Drones for good p82

ince the publication of our last issue in December 2016, exciting changes have taken place. I am delighted to be able to inform readers and subscribers that I am now one of the owners of the CRJ.

Supported by new business partners and co-owners, David Stewart and Kirsty McKeek-Swift, CRJ is now part of a new parent company, Crisis Management Ltd. The new ownership of CRJ brings a fresh dynamism and outlook, ensuring that we maintain our position as the foremost international, multidisciplinary platform for practitioners, academics and all other individuals and organisations that are involved in crisis preparedness, planning and response. We have already launched our new website and there will be constant updates on what we are doing via the CRJ website, Twitter feed, LinkedIn page and our monthly e-newsletter.

In addition to publishing CRJ, Crisis Management Ltd provides a wide range of services across the crisis management and resilience arena, including consultancy and training services – bringing the talents of some of the finest and most respected experts across the globe to this endeavour. The future for CRJ is a positive evolution rather than a dramatic change, and we want our community to help shape that change. We have started this process with a thorough revision of our publication’s format and size, which have been redesigned so that we can include even more information within our pages.

You will find the content and scope are as wide-ranging as ever – from reports on the serviceability of the CRJ’s reach in Italy (p12) and the London terrorist attack (p16), to scanning articles on the threat landscape (p40) and discuss technology innovations in the form of virtual reality (pages 30, 34 and 38) and look at resilience more generally with a host of other articles.

The most vital element of the CRJ remains its community – our global readers, advertisers, authors and Editorial Advisory Panel – and we are committed to making sure that the quality and relevance of our content are maintained and developed even further. The new team has already been out and about at various shows and events around the world and hope to meet many, many more of you over the coming months.

Emily Hough
In this final part of his series on developing incident command systems to deal with today’s hyper-complex crises, David Rubens sets the scene for how decentralised non-hierarchical response management systems can be developed.

If traditional crisis management modelling saw crises as little more than large-scale incidents, limited in terms of their geographical spread and leaving the rest of the operating environment relatively unscathed, the nature of today’s threats are infinitely more complex, with cascading consequences that are literally incalculable. The hyper-complex scenarios examined by Patrick Lagadec reflect the concerns first circulat in a seminal paper setting out the parameters for what were labelled ‘wicked problems’ by Rittel and Webber. Initially focussing on issues of social planning, wicked problems describe open-ended, unbounded crisis environments, which can neither be described in traditional mechanistic terms, nor solved through traditional crisis management approaches.

Hurricane Katrina was a classic example of a wicked problem, in that the original triggering event soon became relatively insignificant in the consequential crises that it caused. Immediate crisis dilemmas included rescuing thousands of stranded citizens, housing, feeding and caring for tens of thousands of homeless people, restoration of a city, preservation of public safety in light of the impact on critical infrastructure, the impact on adjacent jurisdictions and the political implications of perceived failures of the government, the emergency management community, the homeland security agencies and the President himself, who was seen to embody those failures on the public stage.

The 2011 Fukushima earthquake and tsunami in Japan provide another example of where the initial trigger point soon became superseded by the impact of a nuclear breakdown, the subsequent cascading effects on the food supply to Tokyo and the threat of a transnational nuclear cloud, as well as disruption to the country’s global component manufacturing supply chains.

Rittel & Webber’s analysis identified a new class of crisis that would not only fail to respond to classical risk management methodologies, but had mutated into a completely different class of event. Similar to a virus that mutates so much from its original form that it not only refuses to respond to traditional approaches, but refines the parameters of what the threat is, so the new threat must be seen in terms of a completely new and distinct topology, rather than being a sub-set of previously modelled problems. Unbounded and hyper-complex events can no longer be seen merely as a higher, more dynamic form of accident. They are a central reality of the modern world. If classical risk management approaches to the domain of the statistician, predicting future possibilities based on an analysis of an aggregate of the masses, the threat set by the new paradigm is predicated on the criticality of the singularity, the outlier – the unknowable and inconceivable.

The dilemmas that wicked problems pose to crisis managers, strategists and planners are profound; the nature of their scale, complexity and non-bounded nature means any particular response option can only be made in a context of ambiguity, incomplete and uncertain information and organisational fragmentation. In other words, it is often hard to know what exactly the problem is, and almost impossible to know what the solution might be. It is this ambiguity, created by lack of central single focus, combined with unbounded potential consequences and impacts, that distinguishes the true wicked problem from, for example, the major fire that Bigley & Rubens use in their critique of ICS within disaster management scenarios.

Wicked problems

The second problem is that there are no classes of wicked problems that can act as a template for possible responses. Any response to a wicked problem is, by definition, going to be innovative, self-generating and based on ad hoc meetings of minds between a disparate range of knowledge-holders, who will develop situational responsive solutions, based on their own knowledge, experience and insight. The simple truth of wicked problems is that anyone who thinks they have a solution has clearly not understood the question. The polar opposite of such undefined, unbounded and unanswerable situations are the tightly-coupled, interdependent systems described by Perrow (1984), in his study of high reliability organisations. Such systems, often sitting within the national critical infrastructure, are characterised by the potential catastrophic effects of even minor systems failures, involving both fast escalating developing into fully-blown crisis, and rapidly cascading (affecting multiple levels of society across a wide geographical spread) consequences. High Reliability Theory (HRT), is the theoretical modelling of decision-making that aims to create highly reliable operation management programmes that arefall-safe within the context of highly complex, interconnected and inter-dependent networks. HRT depends on granular modelling of systems dependences, identifying potential vulnerabilities and creating safeguards to ensure that the likelihood of any malfunction is minimised, while simultaneously identifying generational problems as the earliest possible stage to allow early intervention.

It has generally been accepted that the highly interdependent and tightly bounded nature of HRT precludes the possibility of innovative and creative solutions to potential or actual problems. However, even within the system dependency and tight coupling of a major power management system, it is the ability of operators dealing with the immediate realities of emergencies to generate innovative solutions using their experience and improvisational abilities that allows them to deal with surprises and volatile events. In fact, the undisputed actions of self-asserting operators responding to the immediate demands of an emerging crisis situation are seen as critical in almost every crisis. This suggests that change may be lessons that can be drawn from the highly-designed environment of critical infrastructures that could have value and relevance within the unstructured environment of crisis management.

The model of crisis management that has been discussed so far follows the assumption that correct analysis of a problem, through identification of critical decision paths, will allow the ‘correct’ solution to be discovered to reach a desired solution. However, with the growth of the understanding of concepts such as fuzzy thinking in the 1970s, it became clear that there were other decision-making methodologies available in addition to the centralized control of increasingly small components of activity. Although the reductionist, mechanistic models may have been appropriate to the problems of the emerging industrial age, they are not applicable to the messy problems characteristic of the 21st Century. Whether they are labelled as wicked, hyper-complex or catastrophic events, it is now recognised that responses to increasingly complex crisis scenarios are based on emergent ad hoc interactions between different groups, each with their own organisational culture, language and wealth of embodied experience. The challenge is to find a way of creating the space wherein these groups, each with its own highly developed but, at the same time, highly focused expertise, are able to develop collaborative relationships based on trust, communication and a recognition of the shared values of the other.

But, constrained by the fundamental nature of wicked problems is that there is no answer to them, and although there may be experts who have particular specialist insight into and control of a ring of – specific aspects of the crisis there are no experts who can claim to know how to solve them. Solutions are not so much managed, as brought into existence through an iterative decision-making process that is in a constant state of flux. This perspective suggests solutions to crisis situations must be pragmatic and situation
The challenge associated with hypercomplex crisis events will be crucial in developing a crisis and disaster response capability appropriate to the challenges of the 21st Century. The recognition of the nature of crisis response as a free-form interaction between a community of knowledge holders, each with their accumulated experience, insight and embedded understanding of potential options, and the ever-changing situation that they are facing, will set the foundation for the ongoing debate as to how decentralized non-hierarchical response management systems can be developed.

While many of the issues covered in this series are well known, it is the ability to transmit the lessons learned to the realities of actual crisis response environments that will be the true test of their value. It is hoped that this paper will contribute to the dialogue currently being undertaken by members of the emergency and crisis management community, whether from the practitioner or the academic wing, and will have some value for those people dedicating their lives to delivering innovative solutions to some of the most testing events that we are currently facing.

References


Renn, O (1972): On the Planning Crisis: Systemic Analysis of the 'First and Second Generations'. Bodtshkoforum,


Author

DR DAVID RUBENS DFM, PhD, FMed of Deltar Management Services Ltd. He is a Chartered Security Professional (CSyP) and a Board Director of the UK Security Institute. He is also recently convicted and explore the innovative solutions that are at the heart of modern crisis response. Our ability to understand, model and then accept

Fuzzy gambling

The acknowledgement that the future state of the project is unknown, even as it is being initiated, changes the whole of situation of the project is unknown, even as it is being initiated, changes the whole of the project is unknown, even as it is being initiated, changes the whole of the project is unknown, even as it is being initiated, changes the whole of the project is unknown, even as it is being initiated, changes the whole of the project is unknown, even as it is being initiated, changes the whole of the project is unknown, even as it is being initiated, changes the whole of the project is unknown, even as it is being initiated, changes the whole of
Select the package that works for you

The Crisis Response Journal is available by subscription only, making us answerable to our readers for the quality and range of our content. Choose a subscription package below or email us at subs@crisis-response.com

Individual: Quarterly printed editions, plus digital edition and full access to entire CRJ archive
£ 100
US$ 120
€ 118

Digital: Quarterly digital editions only, plus full access to entire CRJ archive
£ 60
US$ 77
€ 70

Student: Quarterly digital edition and full access to entire CRJ archive
£ 30
US$ 38
€ 35

Corporate: Five copies of quarterly printed edition, plus digital edition access for up to 30 members of staff and full access to entire CRJ archive
£ 600
US$ 770
€ 700

Institutional: Five copies of quarterly printed edition, unlimited access from one IP address, plus digital edition and full access to entire CRJ archive
£ 350
US$ 450
€ 410

Visit www.crisis-response.com to subscribe or download a free sample edition at bit.ly/2qztBpa

SUBSCRIBE NOW

Authoritative global coverage of all aspects of security, risk, crisis management, humanitarian response, business continuity planning, resilience, management, leadership, technology and emerging trends

PRINT | ONLINE | DIGITAL | PRINT | ONLINE | DIGITAL |
Strategic Solutions for Global Issues

Our experienced multi-national team bring years of expertise in all aspects of Resilience, Crisis Management, Policing and Security services, making Crisis Management Limited a key resource for any level of related work, whether at a local, national or international level across public, private or voluntary sectors.

We do not believe in ‘off the shelf’ solutions but seek to work with all clients to ensure bespoke services that meet clients’ needs and expectations. No projects are too small or too large.

Our multi-disciplined team has vast experience across all sectors and continents. Our experts have the flexibility to provide support at State or Government level for long term work, as well as bespoke niche work on a smaller scale and for short periods. The can-do approach of our team means that we can provide support at short notice if required.

- International Experience
- Bespoke Service
- Flexibility
- Customer Focus
- Communication Expertise
- Breadth of experience

www.crisismangementlimited.com
info@crisismangementlimited.com