

## **Editorial - Special Issue - Communicating Risk Under High Uncertainty: Developing Cross-Disciplinary Knowledge**

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The primary purpose of this Special Issue is to coalesce different perspectives on the theme of 'Communicating Risk Under High Uncertainty' from across a range of subject areas. These areas include environmental studies, international relations, engineering, sociology, psychology, media studies, the health sciences, criminology and anthropology. By bringing different perspectives together, we anticipate that commonalities and points of concurrence will help to identify cross-disciplinary synergies and provide opportunities to explore the potential for a more holistic understanding of risk communication in the academy and beyond.

Five of the articles that feature in this special issue were initially presented as part of a mini symposium organized under the auspices of the International Association of Structural Safety And Reliability (IASSAR) umbrella committee during the 11<sup>th</sup> International Conference on Structural Safety and Reliability, which took place at Columbia University, New York, on June 2013. These, along with four additional selected articles that together comprise this issue, each take a critical line of inquiry and collectively contribute to ongoing discussion of the many issues and difficulties associated with the theme of communicating risk under high uncertainty across different contexts. Here we provide a brief overview of the contributions of each article.

Reflecting on the main contributions to this issue, the first article by Wardman and Mythen outlines some of the broader literature and historical developments that 'set the scene', and serve as motivations for critical inquiry into risk communication under high uncertainty. The article makes the case that the systemic dynamics and implications of high uncertainty vis-à-vis Black Swans call for more a holistic concept of risk communication and consider how a more

nuanced and critical treatment of Black Swans might be supported and advanced.

The next three articles tackle issues concerning the conceptual foundations of 'Black Swan' characterizations, the problems 'Black Swans' present for risk management, and what happens when we do not learn from encounters with Black Swans. First, Lindass and Pettersen critically engage with Taleb's (2007) treatment of Black Swans, pointing out that what we might think of in absolute terms as Black Swans are constructed entities which take shape relative to people's knowledge, ideas and beliefs. They elaborate the characterization of Black Swans beyond the impact of highly improbable events to include consideration of 'unknown knowns' and the routes by which the possibility of extraordinary risks might be imagined and acted upon. These authors thus open up another worldview of representing and communicating risk under conditions of high uncertainty that is less reliant on the traditional means of detection and prediction and more reflective of the merits of bridging different risk perspectives. This is illustrated by analysis of the terrorist attacks in Norway on July 22 2011, and some key challenges for further developing such a perspective within risk analysis are sketched out.

The next article by Kim likewise questions whether Black Swans are truly unknowable by interrogating the underlying assumptions concerning the identifiability of risk and the extent to which unknown unknowns are believed to be impossible to find in advance. The article elucidates why some risks are hard to identify in advance and sets out a proposed identification model for differentiating knowledge about unknown unknowns. This model is then applied to the case of the Deepwater Horizon oil spill to help specify how the mechanisms by which hidden risks can be revealed.

The article by Maslen and Hayes asserts that a failure to learn from past disastrous events can lead to further 'Black Swans' irrespective of information that would help accident prediction and mitigation. They examine how incident reporting systems may work as a mediating tool for collective knowledge rather than fragmented knowledge. They argue that better warnings and accident prevention may be achieved by emphasizing effective sharing of what people 'need to know' rather than what they 'need to report' or 'need to learn'. However, this also depends upon key processes of mediation and synchronization that require social practices to transfer, translate and distribute knowledge between people. This commonly involves mechanisms such as story telling that often are not given systematic consideration. In conclusion, they question the extent to which such processes might then be formalized by management, which raises avenues for further research.

Following this, Micic explores the association of low probability events in quantitative engineering risk with perceived risks amongst groups of stakeholders involved in built infrastructure procurement. This inquiry is set against the backdrop of variable risk management standards. Particularly, Micic argues that a hybrid approach is needed in order to establish the role of

motivational values that respective parties identify with, arguing that if more targeted interventions are provided along such lines it could lead to more consistent levels of acceptable risk to be embedded within regulation.

The article by Lidskog and Sjödin further explicates the role and use of professional expertise in extreme situations. Key questions of epistemic authority and embodied knowledge are examined with respect to how uncertainties were handled and disclosures were made and acted upon in relation to the provision of forestry consultant guidance relating to a storm that caused the most severe damage in Swedish history. The analysis of three empirical cases stresses the highly contextual nature of risk management and how conflicts can arise between the goals of different epistemic communities. They also consider that information may be interpreted in accordance with the robustness of knowledge and well-established practices, but that these established understandings and procedures may also become obsolete following system change.

Next, Lee and McGovern present findings from a qualitative study on the sensitive yet vital practice of risk communication in relation to crime. They show that the professionalization of police risk communication reveals a complex set of considerations and motivations that are integral to the operations of police work. Notably, the organizing logics of risk have strongly influenced the nature of contemporary public relations between police and the media and subsequently the public. They argue that risk shapes 'what' information can be made public, 'when', by 'whom', and to 'what ends' through processes that reflect upon identifiable issues of public duty and responsibility, trust and legitimacy, and image management. Risk information is seen to be important, but, under uncertain conditions, so are forms of reassurance, confidence building and risk minimization. At the same time, a cautionary note is sounded that as new forms of communication reduce some risks they also open up new risks because they contribute to the production of new risk events.

The article by Baillergeau analyses the substance of interactions and grounds for challenging common assumptions about the divides between expert knowledge and lay belief in discourse about probabilistic, clinical and experiential forms of risk knowledge. Baillergeau considers, in particular, how the extent to which sources are interrelated and used is indicative of the extent to which uncertainty is acknowledged or denied through prevention once it has been turned into interactions that involve risk assessors/managers and risk-takers. Questions abound, however, concerning how often preventative interventions actually reflect cross-fertilisation of knowledge and in what cases it can and should be informed by those from vulnerable populations.

Finally, the piece by Mueller and Stewart considers 'the curse of the Black Swan', whereby events that are essentially aberrations become harbingers of harm, eliciting emotional responses and extreme reactions. They argue that, once internalized, the framing effects of past responses to Black Swans can become difficult to dislodge, even when disconfirming evidence offers a more sensible perspective. Mueller and Stewart illustrate their arguments with respect to the

formation and consequences of 'unexpected reactions' in the emblematic case of the 9/11 terrorist attacks in the United States.

In sum, the contributions to this special issue raise important questions about current understandings of uncertainty, highlight and extend existing insights into some interrelating problems of risk communication in indeterminate conditions, and set a path towards potential avenues of future practice and critical inquiry.

## **References**

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