

# The Hong Kong University of Science and Technology

Dept of Information Systems, Business Statistics  
and Operations Management

Seminar Announcement

## Learning (or Not) from Precursors to Disasters

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**Date** : 11 December 2015 (Friday)  
**Time** : 11:00 - 12:15 pm  
**Venue** : Room 3001, LSK Business Building



**Abstract:** Disasters are invariably preceded by near misses, that is, precursor events that could have led to a disaster but did not. Precursors help in learning the true likelihood of a disaster; however, in many relevant settings, a firm (principal) does not directly observe the occurrence of precursors but instead relies on the reports of an operator (agent). This presents a quandary. On the one hand, since the agent is often additionally responsible for exerting effort to mitigate the occurrence of precursors, he will underreport such incidents if the principal treats them as a signal of his underperformance and penalizes him. On the other hand, if the principal were to implement a non-punitive precursor reporting scheme, then that would undermine the agent's motivation to exert mitigation effort (why bother if there is no penalty for underperformance). Thus, providing the correct incentives to the operator requires balancing the goals of risk mitigation, reporting and learning. We examine this problem through a novel model of dynamic contracting with reporting and learning. The nature of the optimal incentive scheme (whether or not precursors are penalized) depends on two factors: i) whether or not precursors are observable, and ii) the magnitude of disaster-related losses. We find that "rational" firms may fail to learn from precursors in the face of significant disruptions because they prioritize inducing mitigation effort over learning. Our results also shed light on why a firm may underinvest in operator training: providing the right incentives for inducing effort from better-trained agents may be prohibitively costly. Thus, we highlight circumstances which may warrant regulatory intervention.

**Bio:** Heikki Peura is a PhD Candidate in Management Science and Operations at London Business School. His research interests are in the operations and economics of different energy technologies, risk management, and the interface of finance operations management. Heikki holds a MSc in Engineering Physics and Mathematics from Aalto University, Helsinki, Finland.