

Risk DNA: An Evolutionary Approach to Identifying Emerging and Adapting Enterprise Risk Using Phylogenetic Analysis

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Abstract

Contemporary enterprise risk management (ERM) has moved from an event-based view of risk to a hierarchical, systems-based approach. Risk systems that involve human interaction are classified and behave as complex adaptive systems. One of the key signatures of complex adaptive systems is that they evolve, and therefore a detailed understanding of the evolution of an enterprise's risk system should reveal the nature, future likely emergence and adaptation of risks in that enterprise. In order to operationalize such an approach, a methodology is proposed in this paper that draws on phylogenetic approaches that have been successfully developed for biological evolution. The technique and process provide an insight into the lineage, pace and impact of external conditions on the evolution of risks. They also provide a unique and rational classification of risk in an enterprise that can be used to optimize risk management resources. An example of a fictitious insurance company is used to illustrate the approach.