



Chapter X

The Survivability Principle: IT-Enabled Dispersal of Organizational Capital

Andrew P. Snow, Ohio University, USA

Detmar Straub, Georgia State University, USA

Carl Stucke, Georgia State University, USA

Richard Baskerville, Georgia State University, USA

Abstract

The horrific terrorist attacks carried out on September 11, 2001, and the ensuing aftermath are driving managers to reconsider organizational risk. The collapsing towers moved the hypothetical risk of centralization to the shockingly real. In this new environment, organizations need to see survivability as a critical imperative motivating an updated enterprise risk mitigation strategy that includes new design objectives such as: (1) more geographically distributed organizations, (2) a move from redundant to physically distributed IT capabilities, and (3) more stringent security and survivability demands on enterprise IT infrastructures and network service providers. While individual firms' strategies will vary in the extent and type of physical decentralization, the overall tendency should be toward further dispersal of people, technology, and physical assets. This chapter examines the concepts of risk and decentralization as articulated in the scientific literature and then presents a strong logic for physical decentralization supported by a technical risk analysis.

Introduction

In the aftermath of September 11, 2001 (referred to hereafter as 9/11), managers need to take a fresh look at organizational risk and how *information technology* (IT) needs to adopt new enterprise risk mitigation strategies. These future risk mitigation strategies may result in the implementation of dispersal strategies in organizational design and more geographically distributed organizations. As a result, IT managers will not only need to develop technologies for supporting this overall organizational dispersal, but will also need to reorganize the IT function in a distributed form to increase survivability of the IT organization itself.

In addition, we believe there is a need for IT managers to understand certain basic networking and organizational survivability principles in order to better support senior executives in designing this dispersal. Primarily, these principles must be applied in two forms. First, the *information systems* (IS) architecture will be forced to move its assurance strategy from fully redundant to economically physically distributed IT redundancy capabilities. Second, network survivability principles from the network technology literature can inform organizational dispersal design. Fundamental economic principles in network survivability are necessary to effectively design the organization for survivability without substantially increasing organizational capital (i.e., size in terms of number of duplicate workers, IT equipment, etc.).

The result will be a shift of risk away from more centralized IT organizations to physically distributed IT infrastructures and networks that interconnect geographically disparate sites. Our contribution in this chapter is to explain the survivability principle as a logical and technical design, project it as an economic principle, and then apply this to the organization as a whole.

We pursue the following line of thinking:

- In the wake of 9/11, organizational dispersal is the most viable organizational option for survivability (the survivability principle);
- Dispersal of IT resources and capabilities is a closely related logical inference (also, the survivability principle); and
- Managers must determine the optimal trade-off between risk and cost in these dispersal decisions (a basic economic principle).

Risk and the Centralization- Decentralization Argument

Risk propositions are always tenuous, the classic calculation of risk being the potential dollar impact of an adverse event multiplied by the probability of that event occurring. The problem with such value propositions are that they are often represented by a very large loss number, which everyone can estimate, multiplied by a very small probability number, which no one believes.

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