
THE TRANSFER AND DIFFUSION OF INFORMATION TECHNOLOGY FOR ORGANIZATIONAL RESILIENCE

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- Working conferences.

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PREFACE

In a turbulent world where companies are trying to realign their resources faster than the competition, resilience is defined as the capability to absorb strain and recover from untoward events through continuous reconstruction. Resilience implies a capacity to be robust under conditions of stress and change (Coutu 2002). It can be achieved by creating and maintaining cognitive, emotional, relational, or structural capabilities sufficiently convertible and malleable to cope with a dynamic environment. In the competitive marketplace, many countries are making the transition from technology-importing, efficiency-based development to innovation-based development. Organizations located in so-called “first world” economies are increasingly concerned with making local enterprises more resilient in their current geographical location and firms in “third world” economies are keen to establish and retain knowledge-based economic activities.

The focus of this conference is on how IT innovation can contribute to making organizations more resilient. Commercial organizations are trying to make sense of the competitive environment and quickly generate new strategic options. Public organizations are struggling to meet societal needs for innovative information services. IT staff have spent much of their energy improving transactional efficiency. IT now needs to be seen as a positive force for making business innovation resilient. Issues such as IT organizational design, social networking, diversity, improvisation, and rich media are likely to advance our understanding of resilience in this context, and account for an organization’s need to sustain innovation. Where firms fail to achieve resilience, the financial and social costs of organizational failure can be high. Many large, reputable firms linger in a coma for years before dying (Meyer and Zucker 1989). Both the United States and Europe are strewn with once-thriving industrial cities severely impacted by the inability of large local enterprises to quickly adapt to new technologies, globalization, or competition.

The path to organizational resilience is a difficult one and can require some fundamental changes in culture and strategy (Välikangas 2004). Managing a resilient corporation requires a willingness to access information from multiple sources for richer content, and to carefully question guidance from those with a vested interest in the status quo. Resilient companies don’t simply develop a portfolio of product innovations; they employ experimental strategies, mining ideas from all parts of the company. For example, Nokia refocused the entire company on mobile phones, realizing it had a technology advantage due to its home market in the Nordic countries. Nokia also considered itself a fashion house (rather than a producer of gadgets), which helped to open up a younger market. IBM, today, is an IT powerhouse together with a newly acquired consulting services arm. IBM acknowledges that it is services—not IT—that its clients wish to buy.

Most companies create budgets based on the legacy principle; a resilient solution uses market-based mechanisms to manage resources so that funding of known opportunities is balanced by an appetite for new ventures. Effective organizational governance can be used to provide safeguards against wrongdoing and improve leadership. Directors, feeling the heat from shareholder activists, litigators, and regulators, have to make sure that management has a plan for the future—a plan that doesn't just relive the past.

Sheffi (2005) points out that modern organizations are struggling to build resilience in the face of many turbulent forces. There are disruptions to the means of production. Hazard vulnerabilities include both random disruptions and malicious disruptions such as international terrorism and product tampering. Financial vulnerabilities include a wide range of macro-economic and internal financial troubles from currency exchange fluctuations to credit rating downgrades to irregularities in financial statements. Strategic vulnerabilities include everything from new overseas competitors to public boycotts to ethics violations.

In this turbulent environment, the transfer and diffusion of IT is a critical issue. Enterprise systems are being looked to for assistance in overcoming forecasting problems that are particularly problematic in a rapidly changing economic landscape. Globalization is exerting an influence because supply chains are getting longer, resulting in longer lead times, a need to forecast in advance of sales, and greater communication challenges. Increases in product variety and decreases in product life cycle are resulting in many new products that have no "history." In addition, the sheer volume of new products and increasing variety of existing products mean that each is sold to an ever smaller market segment, which is more sensitive to random variations. Increasing homogeneity of demand is also having an effect: when markets act in unison, the amplitudes of their uncertain fluctuations are larger. Moreover, this trend makes it hard to dump obsolete inventory into secondary markets.

These challenging operating conditions are forcing users of enterprise systems to adopt forecasting methods that address the uncertainties described above. There is greater emphasis on data aggregation. Aggregate forecasts are more accurate than disaggregate forecasts because errors tend to cancel each other out. Time horizons are shortening as the longer a time horizon, the less accurate the forecast. Where possible, there is greater reliance on historical data because forecasting methods rely on history and experience, although when companies enter new markets, data are scarce, making it hard to forecast. There is a growing reliance on trading partners who may have information that can aid forecasting. For instance, retailers can provide data on sales patterns so that suppliers can base their forecasts on actual consumer patterns.

Organizations are also developing behavioral norms that support resilience (Mallik 1998). These organizations are adopting positive adaptive behaviors, rather than programmed responses. They are trying to ensure a steady supply of external resources (e.g., advice, information, finance, and practical help) and are expanding their decision-making boundaries—in terms of ability and authority. Bricolage is being embraced because the ability to fashion a solution on the spot differentiates organizations that are similar on price and quality parameters. There is also a growing tolerance for uncertainty because resilient organizations have the capacity to make good decisions under conditions where the amount of information they have is less than what is desired. IT

architects are building virtual systems because a virtual system can provide a work environment where the team can continue in the absence of one or more members.

These researchers all assert the criticality of resilience while emphasizing different issues and views. We ask, is there a common platform or common underpinnings for understanding the need for change and agility, and the dynamics of the change process—including its outcomes, stakeholders, and decision makers? Based on their analysis of 25 innovation efforts, Van de Ven et al. (1999) suggest that complex innovation processes include six major and interacting issues: ideas, people, transaction, context, outcomes, and process. Indeed, these are high level notions, but at present they are the best argued set of change-related issues. We hope that this conference can open a dialogue and move our understanding one step further to identify the major constructs and dynamics in creating and using “resilient” information systems.

This conference will examine some of the critical issues underpinning the current debate on resilience. Themes that will be explored include the role of IT in nurturing resilience, the impact of knowledge exchange on resilience, and how improvisation relates to resilience. The keynote speakers will also focus on three themes that are central to the topic: agility (Bob Galliers), innovation (Liam Bannon), and business resilience in a global economy (Rory OConnor).

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