Risk Management in the Digital Economy

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INTRODUCTION

Digital Economy and Risk: A Two-Edged Sword

The digital economy has been generated by radical changes to every aspect of business and commerce in the last two decades. These changes are far more significant than the developments in Information and Communication Technologies (ICTs) that have largely facilitated the digital economy itself. Every business sector has witnessed changes in the competitive structure of the marketplace, consumer preferences, buying habits, marketing and promotional strategies, production operations, internal administration systems, supply chain arrangements, and the opening up of the global economy. Managers would concede that the uncertainties and risks in running their businesses, as a result of such changes, are not only much greater than previously but increasing. However, the digital economy is a two-edged sword in the sense that the ICTs generating the additional uncertainties and risks also provide the means to enable decision makers to manage them more effectively. The key to survival in the digital economy rests with the abilities of the managers to utilize ICTs effectively to manage uncertainties and risks.

ICTs have largely been seen as helping to enhance database access, analytical powers, and the communications capacity of managers. The justification for these efforts has been based on the premise that more and better quality information will result in reduced uncertainty and improved risk perceptions in decision situations. In short, the outcome would be reflected in "better quality" decisions in terms of risk assessment and resolution.

BACKGROUND

The Digital Economy

The term "digital economy" reflected in the title of this paper may be viewed from a variety of perspectives:

1. Technology developments, especially those relating to the digital communication of data and information, are usually considered the primary driver in the creation of the digital economy. Increases in speed, improvements in capacity, accuracy, reliability, general quality, and ease of use are all features that have enabled the widespread adoption and development of digital technologies. The developments in audiovisual communication technologies and wireless technologies are opening up further opportunities for the transmission and exchange of business intelligence.
2. Socio-economic changes have been equally influential in the rapid adoption of the new technologies. Individuals of all ages, educational and social backgrounds are prepared to regularly use mobile communications, access the Internet and engage in interactive video communications, often with friends and family in different parts of the globe. The impact that these changes in individual and group social behaviors have had on the rate of adoption of new technologies should be fully appreciated. The reasons underlying such changes are multifaceted and complex and beyond the scope of our present discussion, although they have broadly been influenced by individual social and economic needs.
3. Micro-economic factors at the level of the individual organization have been responsible for "pulling" and "pushing" organizations and their management towards increased attention and adoption of the digital economy. Significant "pull" factors include demands from end users of the product or service (e.g., requests for more detailed information on the product/service prior to and subsequent to the purchase, in terms of performance, maintenance, modifications, upgrades). The "push" factors are typically associated with the business organization seeking to maintain its competitive position by offering services equivalent to those of its main competitors, especially if these may be viewed as providing a distinctive competitive advantage (e.g., providing detailed product information via the Web and enabling customers to order directly). Some of

Table 1: Key topic areas presented in this article.

Key topic areas relating to digital economy and risk presented in this article include:
• primary elements of the digital economy
• overview of risk and risk management
• risk and uncertainty
• individual/organizational response to resolving risk
• role of information search and corporate intelligence
• contribution of the digital economy to risk resolution
• individual characteristics and risk perceptiveness
• management of risks
• risk perception
• information processing and risk resolution
• risk management within the digital economy

the issues involved will be discussed further in later sections of the paper.

4. Macro-economic factors are particularly significant in enabling the development of the digital economy, although they are often less evident when exploring individual product/market developments. Changes in legislation affecting consumer rights, guarantees of financial transactions, security of information held on computer systems, and commercial contracts negotiated via the Internet are all examples of the changes in the macro-economic environment needed to facilitate and support the development of the digital economy. Without such changes, individual organizations and customers might consider the risks of such commercial transactions to be too high. In essence, the responsiveness of governments and other similar institutions have lagged behind many of the demands placed on them by the rate of change in the digital economy.

It may be argued that defining the term "the digital economy" remains problematic due to the number of perspectives from which this term may be viewed and due to the number and interactive nature of the variables involved.

OVERVIEW OF RISK AND RISK MANAGEMENT

The key dimensions of risk and its management are represented in Table 2.

Risk and Uncertainty

This seemingly simple term "risk" has proved somewhat problematic in arriving at an agreed definition. Most academic fields and researchers (e.g., Dowling & Staelin, 1994; Knight, 1921) provide variations on the theme, though most would agree that risk relates to two dimensions: the *Likelihood* of a particular event occurring (i.e., probability), and the *Consequences* should this event occur.

In the case of the consequences, it has been common to assume that these are generally undesirable, e.g., financial loss or even loss of life. Sitkin and Pablo (1992, p.9) define risk as "the extent to which there is uncertainty about whether potentially significant and/or disappointing outcomes of decisions will be realised." Similarly, MacCrimmon and Wehrung (1986) identified three components of risk: the magnitude of loss, the chance of loss, and the potential exposure to loss. However, it is important to recognize that there would be no point in taking risks unless there were some benefits to compensate for the possible negative outcomes (Blume, 1971). An associated feature is that of differing risk perceptions. Different individuals, groups of individuals, and organisations may view or perceive the risks (i.e., the likelihood of occurrence, nature and scale of negative consequences, and the potential rewards) differently (e.g., Forlani & Mullins, 2000; March & Shapira, 1987).

The term "uncertainty" typically reflects the ambiguity surrounding the decision situation in terms of the precise nature of the situation, its causes, possible solutions, and the reaction of others to possible actions taken. Rowe (1977) has defined uncertainty as the absence of information concerning the decision situation and the need to exercise judgment in determining or evaluating the situation.

Table 2. Key dimensions of risk and its management

• risk and uncertainty
• risk solution
• role of information search and corporate intelligence
• contribution of the digital economy
• individual characteristics
• management of risk
• risk perception