

## Chapter 6.3

# Neural Data Mining System for Trust-Based Evaluation in Smart Organizations

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### ABSTRACT

Nowadays, many enterprises manufacture and distribute their products or services globally, and quite a number of smart organizations are formed on the Internet and are expected to evolve to a strategically important e-business model. Although information and communication technologies (ICT) and knowledge management plays an important role in linking the core and partner companies, it remains subservient to the humans that form the smart organizations. This chapter identifies two instances in which trust-based evaluations of partners in the smart organizations are applicable. A review of the literature indicates that neither researchers nor practitioners agree on a single model of interfirm trust that applies to all partner evaluation contexts. A decision-support system based on neural network and data mining technologies is proposed. A case example is given to illustrate a trust-based evaluation in real situation.

### INTRODUCTION

Fostered by the rapid and ever-increasing pace of development of information and communications technologies (ICT), a new digital economy is emerging around the globe. In this new digital economy, small and medium enterprises will have more chances than ever before to play a role alongside the big players. Since the Internet is being adopted as the most important global communications infrastructure, and because global knowledge is becoming accessible by everyone with Internet access, the digital economy will be characterized by radically new forms of business relationships and will have a profound effect on the way we work and live.

The current business environment can be typified by continuous pressures to change and the shortening of product development times and product life cycles. Markets are fickle and strongly customer-led, with unrelenting pressures to bring down costs and to take advantage

of innovative technologies. Many organizations look to new organizational structures such as the smart organization to enable them to cope with these changed conditions. As computers rapidly shrink in size, ICT are becoming ubiquitous and invisible. Organizations preparing to go digital need to recognize the implications this transition will have on their business processes and organizations as a whole. Besides setting up the digital infrastructure, organizations need to be able to:

- enter into virtual global internetworked collaborations
- manage transition and adapt quickly
- leverage human capital to optimize performance

In other words, organizations need to get “smart.” The characteristics of a smart organization (Filos & Banahan, 2000) adopted in the present context are:

- internetworked
- dynamically adaptive to new organizational forms and practices
- knowledge and learning-driven
- hierarchically flattened where the individual’s skills, intellect, and knowledge, are recognized, valued, and leveraged

In the past, it was more cost-effective to own all aspects of the value chain—vertical integration was the business model of choice. In today’s global market, focus is critical. Owning the value chain may actually put an organization at a competitive disadvantage due to the lack of flexibility and financial commitment true vertical integration represents. Selecting the right partners and nurturing these relationships can help a company focus on what creates the most value for customers and concentrate on its core activities. Smart organizations also offer versatility. They create new, viable market options and allow companies to deal more effectively with the uncertainties

and complexities of today’s highly competitive global market.

Following Jarvenpaa and Leidner (1998), a global smart organization can be defined as a temporary, culturally diverse, geographically dispersed, electronically communicating work group. The notion of temporary in the definition describes teams on which members may have never worked together before and who may not expect to work together again as a group (Lipnack & Stamps, 1997). The characterization of smart organizations as global implies culturally diverse and globally spanning members that can think and act in concert with the diversity of the global environment (DeSanctis & Poole, 1997). Finally, it is a heavy reliance on the integration of information and communication technologies (ICT), knowledge and organizational networks that allows members separated by time and space to engage in collaborative work. The reasons that smart organizations are becoming so prevalent nowadays include low overhead, flexibility, minimum investment, and high productivity. By owning few resources and focusing on the organization’s expertise, the company can keep high levels of productivity while allowing its partners to do the same. Both the partners in a smart organization and the individuals who work for the partners are allotted greater flexibility. The partners can focus on core competencies, while individual workers may have the ability to telecommute from their homes. In a smart organization, companies are linked by the free flow of information. There is no hierarchy, no central office, and no vertical integration: just the skills and resources needed to do the job. Each participating company contributes what it is best at. It can be seen that since no single company will have all the skills necessary to compete in the global electronic market, these arrangements will become the norm. One of the keys to the success of the smart organization is the use of ICT to facilitate these alliances.

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