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Smart Business Networks

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With 90 Figures

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Smart Business Networks

Preface

Jan Baan

Based on my experiences in the world of Enterprise Resource Planning (ERP) a question has been on my mind for a number of years: "Why is that software so often hinders collaboration between people, systems and organisations? What makes it so complicated and what can be done to resolve this?"

As modern communication, such as the Internet, enables many more distributed ways for cooperating, organisations need fast and reliable ways to connect - and disconnect - their processes. ERP cannot do this. We need a more advanced technology. Not one that "hard codes' organisational processes leaving little or no opportunity to change them, rather one that allows organisations to capitalise on new business opportunities by respecting former IT investments, leveraging their existing systems and developing new business process driven functionalities. At Cordys we believe that we have developed a compelling solution to these challenges. We speak of lightweight, composite application frameworks: a thin layer of software using existing organisational systems and managing them in an intelligent way.

I am attracted by the term "business operating system". In the 1980s computer operating systems were invented to allow application software to be run on different hardware platforms. Today we require equivalent "business operating systems" to run business processes on different organisational platforms. Each process starts a complicated path of activities picked from the members of its business network. We posed the question: what should be done to make the outcomes of this network "smart", that is, just a little better than that of your competitor? More agile and self-learning, giving more return to all the members of the network, now and over time?

The near future will be about event-driven smart business networks bringing together the qualities of independent professionals and smart companies doing everything they possibly can to serve their demanding clients in the best possible way. Potentially, smart business networks can contribute greatly to the well being of people and to business success. And, if the concept is worked out thoroughly and sensibly, we can enter a new age of global collaboration that will benefit all participants.

This book is the result of research carried out on the question *"how do you make business networks smart"* and the resulting discussions at our castle, "The Vanenburg", in Putten. From 26-28 May 2004, scientists and business people worked together to exchange their experiences and research, to make predictions on the future of smart business networks. The meeting was inspiring. Let this book inspire you!

We are talking about new possibilities for the worldwide collaboration of people, systems and organisations for their joint benefit. Since we are now on the verge of a new era, I encourage scientists as well as business researchers to join hands and explore the new opportunities that this technology presents. Just collaborate.

Jan Baan
Founder and
Chief Executive Officer
Cordys

Han van Dissel

Innovation is at the heart of business success. The Internet and mobile and wireless communication technologies are critical enablers of todays business innovation. As we gain deeper understanding of the technological possibilities, it is becoming clear that their successful application requires more than simply exploring and exploiting new products or services. What decides real success is the ability to organise, to build and to sustain a value network of different business organisations. This book addresses this "organising capability" as it speaks of "smart business networks". I believe the concept of a *smart* business network will create many progressive and far-reaching changes: smart organisational networks will have a lasting impact on our ability to generate wealth in an increasingly global business world.

The first wave of Internet-enabled business innovation concentrated on new ways of interacting with the customer, on the "web-storefront", online information provisioning and order taking. But great web sites do not necessarily result in great profits. Without the ability to act effectively on what the customer wants and expects, many of such websites have failed to deliver compelling business results. A new way is required to organise and manage the many parties involved in the creation, and fulfilment, of a customer order. This is what we call the "business network". It becomes smart if the network allows customisation, personalisation, and relationship building; if it enables cross-boundary logistics and the strengthening of brand identity. Logistics should play a dominant role in the enablement of smart business networks - the more so as the Internet and mobile communications change the market to a web of interlinked supply chains.

In my view a smart business network is critically dependent on the excellence of the business process management of the cooperating firms. As each firm will have access to the same technology, its own competitive edge will depend on its unique ability to fuse people, business processes and technology. The decisive factor may well be a firm's competence to "out-source" business processes and to "out-task" functions to best-practice, online players, while at the same time building, enhancing and sustaining relationships.

Process excellence in smart business networks creates many challenges for the firm as well as for academia. Let me propose some themes:

1. Most organisations divide logistics over many functions. Implementing smart business networks will require a much more holistic view on logistics in order to make business processes more modular and dynamic

and to gain sourcing flexibility and asset efficiency. We know little about how to transform existing organisations into smart business networks, how these networks should be governed, and how to leverage their value potential for an individual firm participating in the network.

2. New technological solutions tend to bring new functionalities without immediate attention to their integration with legacy systems. The inability to integrate legacy systems into smart business networks may be a barrier to their success.
3. The sourcing of business processes to best practice providers may, in the short term, bring a favourable change to a firm's capital structure but increases the dependency on the process provider. The provider may be the one who harvests the profits of moving to the next practices. The longer term implications of business process outsourcing in smart business networks are largely unknown.
4. Embedding business rules in the software of the business network enables customer self-service but, at the same time, a firm runs the risk of removing the distinctive, humanised content from its offerings. At the end of the day, the social capital within and surrounding the business networks may be a very important factor in determining a firm's competitive position.

The concept of smart business networks provides a strong, new direction for business research. We, at RSM, are keen to take a lead. As a research-driven school we must continually investigate new areas in order to provide the business community with guidance and world-class education for business excellence. Smart business networks must begin with smart, educated people. This book brings together experience, research, and predictions on smart businesses. Its creation is a result of the work and enthusiasm of the many contributors and, in particular the interest and continuing support of Mr. Jan Baan, Founder and Chief Executive Officer of Cordys. This book offers a venue for everybody interested in exploring and participating this new competitive frontier. I trust you will enjoy reading it.

Han van Dissel
Dean RSM
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Introduction

1 Welcome to Smart Business Networks

Introduction

Rotterdam School of Management is less than a mile away from the biggest cargo port in the world. During 2003 this Port of Rotterdam handled 327 million metric tons of cargo. Over 29,000 sea-going vessels docked at the port. Over 7 million containers ("TEU's" i.e. 20 foot equivalent units) were carried through an area less than the size of the center of New York: 20,000 containers each day! (Port Authority of Rotterdam, 2004).

In August 2003 a group of the School's researchers[1] put the following question: imagine that, all over the port of Rotterdam, one could have instant wireless access to the state of all ships, trucks, containers and cargo, and anyone and anything related to this. If so, could one manage the processes better, faster, more effectively, and more efficiently? What could one do that was not possible before? What would be required to do so?

This book is a first result of exploring these questions. Perhaps not surprisingly, our research took us far from transport and logistics into very different areas. Managing the movement of physical objects, or managing digital goods or services, all seem to have the following in common: it involves many different parties, linked together in a web of activities, using different processes with no single organisation in full control over the others. What makes this cooperation "smart"? Is the physical logistics smartness the consequence of information smartness?

Embedded Smartness

For many years the Rotterdam School of Management has studied integrated transport logistics, from diverse viewpoints such as operations research, information management, and networking, or telecommunications. Over the years, the port changed from a pure transportation hub to a "value-adding hub". Concepts such as "integral value chain management" were coined to describe the management of value-adding processes that are disjoint but need to be "linked": our view was that processes such as sale and purchase, transport, and payment can be integrated and "man-

[1] The group of scientists included professor Peter Vervest, professor Eric van Heck, professor Louis Pau, Lorike Hagdorn, Martijn Hoogeweegen, Otto Koppius, Diederik van Liere, Jeffrey Teich, Jimmy Tseng, as members of the Department Information and Decision Sciences, Erasmus University's Rotterdam School of Management and specialising in the telecommunications of business.

aged" across different parties over time. It is said that handling cargo is difficult because it is not self-correcting. Cargo people refer to passage as "self-stowing cargo". Passengers themselves correct the transport processes if something goes wrong ("they complain"). Not so with cargo! However, this can change. With much more sophisticated telecommunications with simple and affordable identifiers everything could "communicate"; processes would be self-organising, a system could be "intelligent".

This is not an idea restricted to the transport business. It can be a general concept. Consider insurance. Cars and bicycles are already being equipped with identifier-chips. Theoretically, an insurance company is now able to continually manage its exposure to car and bicycle risks and everything that goes with it; from selling insurance products and administering risks, to handling claims.

With new communication technology comes new competitive capabilities. We are advancing from the ability to move information quickly in a given supply chain as mentioned above, to the ability to take advantage of being part of a technological network to rapidly connect to and disconnect from different chains. This requires a different level of smartness and is a central theme of this book – but more of this in later chapters.

Networks - Not Chains

A transport process is an interesting phenomenon since it typically involves many different parties that must work together (or cooperate) to realise the actual movement of physical goods in the right direction. The concept of Porter's value chain (1985) can easily be recognised: a chain of actors (or organisations) each carrying responsibility for a certain part of the chain of activities. Cooperation techniques initially focused on the relaying of the chain, i.e. ensuring that the handover from one party to the other goes well. Once many parties become involved, some with overlapping or competing, capabilities, a selection, or choice needs to be made. The chain becomes a "network" of cooperating or competing parties. These parties are the "nodes" or "actors" while the routes are the "links" or "paths". We speak of "networks" in the classical sense, see Jay and Goetz (1984), as a series of points interconnected by communication channels. Business networks are defined as networks with the "nodes" being business entities or "actors" interconnected by "links", see Miles and Snow (1992) and Kambil and Short (1994). Much work has gone into analysing the information flows in organisational communications (Monge and Contractor, 2003) and the governance of cooperation (Thompson, 2003). But what makes a business network "smart"? What makes a business network

generate more sustainable and profitable outcomes than other forms of competitive, or cooperative, strategy?

Smart - or Stupid - Business Networks

It may not be easy to "see" smart business networks. Smartness may be the result of actions and not always foreseen by the individual actors. Could it be that even stupid actors could create a smart network together? Could a stupid network be the result of smart actors? What defines stupidity? In our discussions we agreed that we did not know! We also postulated that one, critical component would be the following: a smart business network segregates the business logic from the executional processes and activities; i.e. the actors of a smart business network create a *business operating system*. This business operating system coordinates the processes among the networked businesses and its logic is embedded in the systems used by these businesses. In practice we see the first glimpses of smart business networking appearing. For example, Wal-Mart (among many others) is using radio frequency identification (RFID) technology for smarter product tracking and tracing. Dell's modular products and IT infrastructure allow it to configure its supply chain "on the fly" based on the specific customer order. Philips is developing ambient intelligence applications for the next decade consumer homes.

The Research Themes

We set out to explore the scientific and practical implications of the design and management of, what we called, *Smart Business Networks*. We identified the following components:

- Outcome of smart business networks. How do smart business networks outperform traditional networked businesses?
- Execution of smart business networks. How are smart business networks designing and implementing their critical execution processes?
- Governance of smart business networks. How are smart networks coordinated and by what or whom?
- Design of smart business networks. What are the rules embedded in the business operating system and how are they embedded? What can be standardised and how?

We have not attempted to deal with the underlying technologies of smart business networks, but rather with how to design and manage smart networks and to realise business goals using them.