Organizing for Networked Information Technologies

Process Integration and Transformation Articles

Edited by Jan Damsgaard, Jens Hørlück, Pernille Kræmmergaard & Jeremy Rose

PITNIT, Aalborg University, 2003

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Introduction

This book comprises a number of research articles that share the common topic of how companies' implement new networked IT to transform their internal and external business processes. It is the hope that the reader of the articles will gain an overview of some of the challenges and pitfalls that face modern organizations when putting various types of advanced IT to use. The idea is to share some of the practical challenges that companies face but cast in a traditional research article manner. The audience for this book are researchers and graduate students that wish to understand, reflect upon, and learn about the implementation of new networked information technologies.

The casebook is an output from the interdisciplinary research project called PITNIT. The PITNIT project was supported by the Danish Research Agency under grant number 9900102. The articles document a co-operative effort to research the merger and interplay between novel industrial and marketing concepts, and new complex, standard-based and networked technologies. The goal of PITNIT was to describe, analyze and offer practical guidelines for the integration and transformation of industrial processes enabled by networked IT innovation. The project integrated researchers from production engineering, social sciences and computer science departments from Aalborg University and from the department of economics at Aarhus University (see table 1 for an overview of researchers in PITNIT). In addition many national and international researchers visited the PITNIT project. Table 2 lists the principal visitors.

Table 1: Researchers in PITNIT (1999 - 2003)

Jan Damsgaard *Project manager*	Associate Professor	Dept. of Computer Science	Aalborg University
Poul H. K. Hansen	Associate Professor	Dept. of Production	Aalborg University
Jens Hørlück	Associate Professor	Dept. of Management	Aarhus University
Charles Møller	Associate Professor	Dept. of Production	Aalborg University
Pernille Kræmmergaard Jensen	Assistant Professor	Dept. of Production	Aalborg University
Morten Rask	Assistant Professor	Dept. of International Business Studies	Aalborg University
Jeremy Rose	Associate Professor	Dept. of Computer Science	Aalborg University
Jan Karlsbjerg*	Ph.D. student	Dept. of Computer Science	Aalborg University
Peter Lindgren*	Ph.D. student	Dept. of Production	Aalborg University
Somasundaram Ramanathan*	Ph.D. student	Dept. of Computer Science	Aalborg university

Table 2: PITNIT Visitors (1999 - 2003)

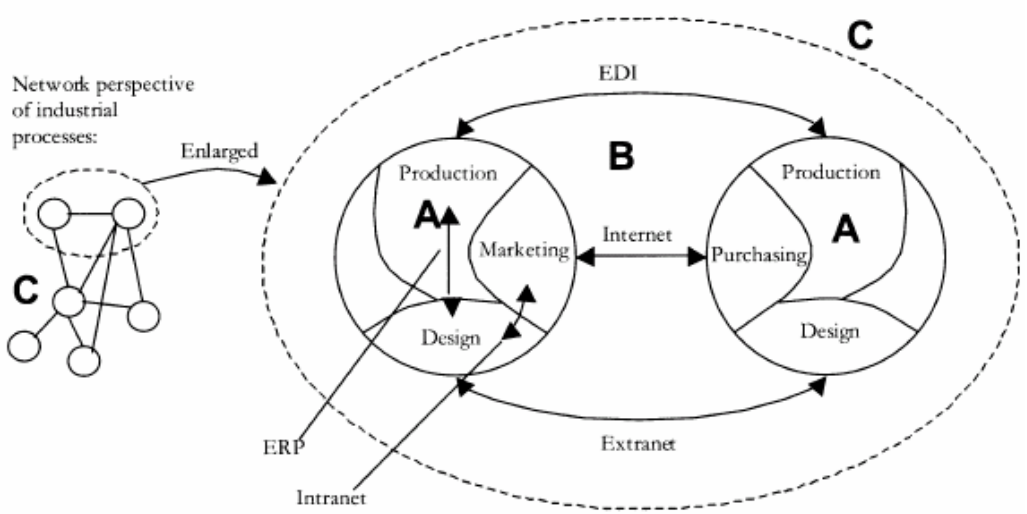
Ellen Christiaanse	Associate Professor	Department of Accountancy and	University of Amsterdam	Netherlands
		Information Management		
Jan Kristensen	Ph.D. student	Dept. of Information Science	The Aarhus School of Business	Denmark
Kalle Lyytinen	Professor	Department of Information Systems	Case Western Reserve University	USA
Ojelanki K. Ngwenyama	Professor	Dept. of Information Systems	Virginia Commonwealth University	USA
Knut Rolland	Ph.D. Student	Dept. of Information Systems	University of Oslo	Norway
Rens Scheepers	Senior Lecturer	School of Information Technology	Swinburne University of Technology	Australia
Duane P. Truex	Assistant Professor	Computer Information Systems Department	Georgia State University	USA
Detlev Zwick	Ph.D. Student	Dept. of Marketing	University of Rhode Island	USA

* Ph.D. scholarship financed by the PITNIT project
* Ph.D. scholarship 50 per cent financed by the PITNIT project. Peter has completed his Ph.D. (2003)
* Ph.D. scholarship financed by the PITNIT project

Background for the research project

The background of the PITNIT project was our observation that established industrial structure was besieged by new networked IT innovations that challenged the status quo and forced a total rethinking of the traditional industrial value chain. As a consequence, the conception of a single organization was, and still is shifting towards a united and highly interrelated value network consisting of suppliers, production units, and customers and consumers. This network of semi-autonomous business units together comprises a complex network of integrated business processes that is constantly reconfiguring itself in response to changes in the market and in the technology or in the management thereof.

Figure 1: The world according to PITNIT



Instrumental in this transition is the pervasive emergence of complex, standard-based, and networked technologies. Examples of such technologies are the Internet, Intranet, Extranet, Electronic Data Interchange (EDI), and Enterprise Resource Planning (ERP) systems. Each of these offers new possibilities for extensive business process reengineering of the enterprise, but also posses a significant threat if left unattended.

In recent years many researchers have concentrated on understanding these IT innovations individually, and with good reason since they are innovative and different from traditional IT innovations. However the technologies are networked and therefore interconnect previously separated business processes. Consequently there is a natural and urgent need to integrate previously segregated research activities into a more holistic view of complex, standard based, and network technologies and their impact on the totality of industrial processes both inside and outside of the company.

The articles

We have selected 10 articles from the PITNIT related production. They can be grouped into three, partly overlapping groups, covering different topics within the framework of PITNIT. Except for one, all articles have been published - or are about to be published - elsewhere.

Group A: Articles primarily related to one organization's perspective on parts of the framework

1. Damsgaard, J. and R. Scheepers (2001). " Knowledge Creation on the Intranet." Australian Journal of Information Systems, **9**(Special Issue on Knowledge Management, December).

   Organisations implement intranets with the intent of harnessing the technology to support knowledge management. The article defines a model, rooted in Nonaka and Konno's well-known framework of knowledge creation, combined with a taxonomy of five intranet use modes. For each of Nonaka's knowledge creating activities a corresponding primary intranet use mode can foster that particular knowledge creation process. It is illustrated by empirical intranet field studies in Denmark and South Africa.

2. Karlsbjerg, J. and J. Damsgaard (2001). Make or buy - A taxonomy of intranet implementation strategies. The 9th European Conference on Information Systems, "Global Co-operation in the New Millennium", Bled, Slovenia.

   This speculative paper is initiated by the fundamental question "how should intranets be implemented?" The discussion uses a framework describing four different intranet implementation strategies based on who implement the intranet (in-house vs. outsourced project) and the technology used (development tools or shrink-wrapped intranet packages). Each of the four strategies has advantages as well as disadvantages. The empirical analysis suggests that the appropriate strategy must be chosen in accordance with the level of internal technical expertise, core competence, and maturity of the technology.

3. Kraemmergaard, P. and C. Møller (2002). "Evaluation of ERP implementation: A multi-perspective approach." Journal of Enterprise Resource Management **4**(4). ERP-implementation is a critical activity for industrial enterprises. We have seen many disastrous implementation projects leaving companies with delivery problems and frustrated employees. This is one of the reasons why the management of ERP-implementation is a significant challenge to both practice and academia. The article argues that a multi-perspective framework for studying ERP-implementation must be used, including the different stakeholders and using at least three different perspectives from which an implementation can be evaluated: organizational, business and technological.

4. Kræmmergaard, P. and J. Rose (2002). "Managing the ERP Journey." Information Systems Frontiers **4**(2).

   In many cases ERP implementations are late, over budget or fail to meet the desired business outcomes. The list of factors influencing implementation is long and mostly relate to the technical implementation - until the system goes live. After that it is an ongoing journey where new functionality, modules, updates,