The advent of the Information Society is marked by the explosive penetration of information and communication technologies in all aspects of life and by a related fundamental transformation in organizations and society. Researchers, managers and policy makers have recognized the importance of addressing technological, economic and social impacts in conjunction. For example, the rise and fall of the dot.com hype greatly depended on the strength of the business model, on the technological capabilities available to firms, and on the readiness of the society and economy at large to sustain a new breed of business activity. However, it is notoriously difficult to examine the cross-impacts of social, economic and technological aspects of the Information Society. This kind of work requires multidisciplinary work and collaboration on a wide range of skills.

This edited book aims to address this challenge by assembling the latest thinking on key areas that mark the social and economic transformation in the digital era. We consider this transformation at the societal and public policy level (Section I of the book), but also through three key areas that bear witness to the transformations taking place in the business environment: trust and regulation (Section II), innovation in business models (Section III), and the drastic change in work practices, where the emphasis on knowledge, learning and networking have become the primary source of creative change for organizations and emergent organizational forms (Section IV).

Social Context and Public Policy marks one of the areas where social and economic transformation has the most widespread effects. Changes in the social context and decisions made at the public policy level have the most profound effects on society, as they affect the behavior and expectations of multiple stakeholders. However, it is also the area where change and transformation typically follows a longer and slower process, as policy makers strive to follow the rapid pace of change introduced by innovative technologies and business models. Social context and public policy therefore mark an area where economic, social, ethical, and political interests become intertwined. In a landscape of changing political economy, issues of social responsibility become relevant at the individual, the organizational, and the public policy level. Policymakers find themselves in a difficult position, where they have on the one hand to enable economic development and address the digital divide, while on the other
hand balancing multiple interests. The case of the Danish EDI Action Plan (Chapter 5 of this book) demonstrates this challenge in practice; to address such difficulties, the contributions in the first section of this book argue for a thorough review of the implications of ICTs on policy making and for the involvement of a wide range of stakeholders so that social context and social policy are shaped to reflect a fair and socially responsible society.

The first chapter, “Why the Digital Era?,” by Jill Shepherd, sets the scene for this section, posing the question of why the digital era results in the particular socio-economic transformations that we witness. The author uses evolutionary theory, “a theory of the transformation of knowledge,” to explain the digital era and argues that differential distributions of knowledge are responsible for different types and rates of socio-techno-economic transformation at a global level. The human genome project and the semantic Web are used as illustrative cases of the challenges experienced in the human pursuit for control of the world. The chapter puts forward a challenging debate: “the extent to which we have control of the economy and society, because both evolve within a broader system where faster and different forms of knowledge are being created.” The chapter suggests that we should acknowledge we are not totally in control, and should approach society and economy through an evolutionary lens.

In the second chapter, “e-Policy: The Impact and Political Economy of the Digital Revolution,” George Papaconstantinou observes that the diffusion of ICTs is transforming industrial economies into economies directly based on the generation, distribution, and use of knowledge and information. However, their impact on the economy is not yet fully understood. To this end, the chapter undertakes to review the impacts of ICTs on the economy in general and on product and factor markets in particular. Focusing on fiscal and monetary policy, the chapter explains how ICTs profoundly affect economic decision making, changing the effectiveness of different economic policy tools, and forcing a redesign of approaches in a number of policy areas.

The following two chapters emphasize the social and ethical dimension of the socio-economic transformation. In the third chapter, “Aspects of Social Responsibility in the Information Society,” Simon Rogerson emphasizes the responsibility of those involved in the planning, development, and implementation of the information systems that turn the Information Society into reality. The role of these “custodians of the greatest change agent yet devised” stems from fundamental assumptions about information and human information rights, access, privacy, self-determination and personal control rather than privilege, power and special interest that should form the basis of a fair Information Society. Using a number of policy cases, the chapter analyzes a number of efforts to address the digital divide in practice, “turning social responsibility concepts and principles in practical policy.” The chapter shows how the identification of stakeholders is “an essential element of proactive social responsibility” and a key strategy for addressing the digital divide.

This is the fundamental argument at the core of the next chapter, by Anastasia Papazafeiropoulou and Athanasia (Nancy) Pouloudi, titled “The Digital Divide Challenge: How Stakeholder Analysis Can Be Used to Formulate Effective IT Diffusion Policies.” This chapter presents the challenges in developing diffusion strategies which strive to eliminate the gap between ‘have-s’ and ‘have-nots’ in the Information Society. The chapter follows the normative aspect of stakeholder theory to analyze the phenomenon of the digital divide and argues that it is ethically appropriate for policy makers to consider all stakeholders, which are relevant to their strategies. Such an approach may
lead to a fair strategy towards the elimination of the digital divide, whether this concerns socio-economic differences between developed and developing countries or between large and small companies.

The section’s final chapter, “B2B E-Commerce Diffusion: The Efficacy of Institutional Discourse” by Kim Viborg Andersen and Helle Zinner Henriksen, revisits diffusion strategies. During the mid- to late-1990s, shaping the diffusion of B2B e-commerce was a key priority for governments and business associations. Viewing e-commerce as the key to continuous economic growth and a vehicle for transformation to the digital economy, national action plans were formulated to accelerate the standard development and adoption of e-commerce. This chapter argues that the Danish EDI Action Plan from 1996 cemented structural problems for the ongoing adoption and diffusion of newer B2B technologies due to a discrepancy between goals and actions, imbalanced partner allocation in standards development, and an overwhelming focus on the public sector despite ambitions to fuel the overall business adoption of B2B e-commerce.

Trust is the foundation for stable economic and social exchange, and a necessary condition for growth and prosperity. To a significant degree, trust is built on a personal level, through the perpetual reconstruction of interpersonal reputation in the reciprocal exchange of expectations and actions. This is the case between close colleagues at work or between neighbors. However, this kind of trust does not scale up effectively in broader settings such as large organizations and markets. This is the case in the majority of social and economic activity in modern capitalist economies. Trust is mediated by a multitude of formal devices, such as rules, routines, legislation, the monetary system, financial institutions, and the state. Clearly, the efficacy of such formal mechanisms requires a certain cultural leap away from a regime dominated by personal trust. For example, it is noticeable how former soviet societies are slow in the take up of credit cards and other non-cash means of payment, as they migrate from an environment relying entirely on state-mediated and personal trust to an environment where trust is mediated by a multitude of decentralized institutions. Evidently, electronic communications and transactions disrupt both the institutional processes enabling trust formation (e.g., the laws enforcing and protecting commercial transactions), as well as the practical tokens for trust identification and exchange (e.g., signatures, paper orders and invoices). These problems are compounded by the virtualization of personal identity. In other words, trust formation in electronic milieux is impeded by the widespread anonymity and fluidity of identities (an individual or organization may enact multiple identities and may change identities over time). Therefore, the reconstruction of trust in electronic channels is essential for growth in the information era. This is achieved by means of private rules of conduct and public regulation. The second section of the book covers such issues of Trust and Regulation.

In their chapter, “Trust in the Digital Era,” Joe Nandhakumar, Niki Panteli, Philip Powell and Richard Vidgen provide an overview of the issue of trust in inter-organizational and interpersonal virtual interactions. They identify a variety of definitions of trust, including those related to benevolence, integrity, competence and predictability. Recognizing that organizations can add value by managing knowledge and developing core competencies outside the organization, and between the organization and its strategic partners, this chapter introduces a digital era interaction (DEI) matrix to support the exploration of trust relationships at multiple levels: between individuals, individuals and organizations, and between organizations. It considers each of these interac-
tion aspects in turn, focusing on recent research projects as examples, and then draws together the common themes and identifies implications for further research.

The second chapter in this section, by Chrysanthos Dellarocas, is titled “Building Trust Online: The Design of Robust Reputation Reporting Mechanisms for Online Trading Communities” and focuses on the efficacy of private rules of conduct implemented by electronic marketplaces in order to promote reputation building and trust formation. The objective of this chapter is to contribute to the construction of online reputation systems that are robust in the presence of unfair and deceitful participants. The chapter demonstrates ways in which the reliability of the current generation of reputation systems can be compromised by unfair buyers and sellers, and proposes a number of “immunization mechanisms” for countering the undesirable effects of such behavior. By following a mechanism design approach, Dellarocas explains how various parameters of the marketplace, notably the anonymity and authentication regimes, influence “immunization effectiveness.” He concludes by discussing the implications of the findings for electronic marketplaces and future research.

In his chapter, “Policy-Driven Signing Frameworks in Open Electronic Transactions,” Andreas Mitrakas turns his attention to the reliability of electronic signatures. In particular, electronic signatures provide an association with transaction data. The author points out that the reliability of electronic signatures for the purposes of trust formation depends critically on the respective policies. Signature policies are a set of rules for determining the validity of electronic signatures. Further, the chapter demonstrates how additional transaction constraints can be conveyed by means of a signature policy. This analysis emphasizes the importance of standardizing electronic signature policies and critically considers current trends in public regulation towards this end. This chapter covers a broad range of issues related to the content, form, and function of signature policies.

The following chapter, “Internet Jurisdiction: The International Perspective” by Meighan E. O’Reardon, extends our outlook on the public sphere to the field of legal jurisdiction. The legal system and the courts enforce trust either by means of threat of penalty or by actually awarding penalties to those who cross the boundaries of acceptable behavior. The problem is that these boundaries, the penalties, and the process of passing judgment are culturally laden and differ significantly from one country or region to the next. However, the information economy knows no national, in particular jurisdictional, borders. A broad range of problems are thus mounting pressure on the international legal systems, as to how to reinstate the trust-enabling power of the courts in an environment where parties can shift their (potentially illegal) activities and legal appeals to the jurisdictional territories of their preference. O’Reardon examines the legal considerations of notice, enforcement, effects, and legitimacy in the context of the Internet, highlighting problems that are occurring. After analyzing three characteristic cases in this respect, the chapter examines a number of directions towards resolving such problems, for example, treating the Internet as jurisdictional sovereignty in itself or harmonizing legislation internationally.

In the section’s last chapter, “Socially Desirable Development of M-Commerce: The Role of Regulation,” Jukka Heikkilä and Juha Laine analyze the complex regulatory challenges arising in the context of new mobile applications and services. The chapter uses as a basis current and emerging European m-commerce regulations. The authors argue that the deployment of regulatory measures is highly dependent on the vision of
the future, which regulators and the society at large are willing to accept. They show that in the mobile communications market, the regulator’s role is to guarantee consumer trust and to safeguard competition between suppliers. The chapter defines socially desirable m-commerce as the ability of all citizens to access mobile services from anywhere at an affordable price. This is a broad and ambitious definition, yet it is operationalized in terms of a series of technical and regulatory requirements that are analyzed in detail.

When considering transformation in the digital era, the most evident, perhaps, area of change is that of emergent organizational forms. The aim of the third section, Analyzing Innovative Business Models, is to present different facets of this innovation. First, it should be acknowledged that the extent of change brought about by the use of the Internet is fundamental. Indeed, while all three chapters in this section use alternative lenses on the Internet—an opportunity to transform business models, the basis for a highly competitive industry of service provision, an alternative technological platform for TV broadcasting—they all recognize the socio-economic transformation it has brought about in different sectors of industrial activity. Second, the chapters illustrate that the analysis of innovative business models need not focus on organizational and technical issues alone. The discussion of pricing, skills, and legal issues in two different Internet-based industries set a broader agenda that also includes individual, economic, and social issues.

Chapter 11, “Business Model Innovation in the Digital Economy” by Chung-Shing Lee and Nicholas S. Vonortas, sets the scene for this section by raising the fundamental question of what makes an e-commerce business model viable. Following a review on the role and components of a business model, the authors argue that doing profitable business in the digital era requires a paradigm shift. E-commerce is characterized as a disruptive innovation, one that transforms the rules of competition and leads to new value propositions and new business models. Thus, a viable business model “must be able to identify and capitalize on the disruptive attributes of the Internet commerce,” as well as follow the fundamental economic principles. The chapter introduces a framework based on these principles that can be used to evaluate whether a company’s e-commerce business model is viable.

In their chapter, “Toward a Profitable ISP Business in a Competitive Environment,” Ioanna D. Constantiou and Jörn Altmann consider the price of innovation by studying a relatively new and highly competitive industry, namely, the market of Internet service providers (ISPs). Although many different pricing schemes could be deployed in this market, two types are mainly offered: flat-rate pricing and per-minute pricing. These pricing schemes are criticized for limiting ISPs’ revenues and for not addressing customer requirements on service quality. The authors focus on the ISPs’ business relationships and on their pricing strategies in order to analyze revenue-sharing mechanisms. It is argued that the introduction of incentive pricing schemes, such as dynamic pricing, may enable the provision of service quality by improving revenue sharing among ISPs.

Another innovative sector is the area of study for the third chapter in this section entitled, “Market Entry Potential and Socio-Economic Implications of Internet-Based TV,” by Claudia Loebbecke and Marcia Falkenberg. Internet-based TV alleviates the distribution channel bottleneck and shifts licensing requirements compared to traditional TV. This lowers physical entry barriers to TV markets via the Internet in various
parts. The case of the German TV sector is used to analyze TV market attractiveness for new entrants. The chapter introduces a sequential framework for assessing the market entry potential of Internet-based TV and examines the skills set of an Internet-based TV provider for market entry. Technical and legal preconditions for success are reviewed, and potential sources of revenue are considered. The chapter concludes by reviewing the possible socio-economic implications in the case of successful market entry of Internet-based TV.

As knowledge becomes the critical resource of the information economy, knowledge workers become de facto owners of their most important factor of production. This change amounts to a rupture in the foundations of the capitalist market economy as we have understood it over the last two centuries, where one of the main objectives of economic organization has been to reconcile the aims and plans of labor with those of the owners of productive assets. The implications are evident both at micro and macro levels. For example, the classical command-and-control hierarchy becomes obsolete; in its place, organizations are seeking to create environments where individual and collective creativity can flourish. Knowledge, in particular tacit knowledge, is virtual par excellence, in the sense that it resides in people’s minds and bodies, and is not easily documented in any inanimate object, be it paper or computer. At the macro level, this virtuality evades the control of traditional structures by which organizations and markets maximize productivity and value creation. The productive management of knowledge and knowledge workers calls for new practices, both at the level of the individual, as well as at the level of the collective. The chapters of the fourth section on Organizing and Managing Knowledge Work shed light on certain aspects of this changing pattern.

In his chapter, “Network Topology of the New Economy: Organizational Passages from Knowledge to Innovation,” Panagiotis Damaskopoulos develops a framework of analysis of the emerging organizational network topology of the new knowledge-driven economy in order to identify critical factors that underpin sustainable processes of innovation. The central argument of the chapter is that in the new economy, innovation constitutes the foundation of the competitiveness and value-creating capabilities of economic organizations. Innovation has emerged as a strategic issue because of the disarticulation of established economic and social structures and processes that has risen as a result of the interplay between technological, industrial, economic, and social transformations. In this context, innovation is not something happening “inside” organizations, but rather at the interface of organizations with the business, regulatory, and institutional environment within which they operate. The process of innovation is increasingly driven by open-source networks of cooperation. The framework of discourse in this chapter articulates a novel way of understanding the fundamental shifts in the production and management of knowledge in the Information Society.

Chapter 15, “Networked Business Organizations: An Actionable Research Framework” by Athanasios Nikas and Angeliki Poulymenakou, examine the nature and tasks of management in networked organizations. The authors provide a specific taxonomy of network organizations, in the broader sense of the term. They focus on the management of dynamic inter-organizational network formations, revealing the basic research issues and providing specific suggestions in the form of actionable recommendations. The proposed framework examines network formations from four different angles with a view to providing novel insight to both researchers and practitioners.
In her chapter, “Labor Flexibility in the Information Society: Is There a Balance Between Skills Improvement and Use of External Employment?,” Irini Voudouri presents empirical evidence regarding the employment relation and effective management of knowledge workers. Based on data from Greek companies, the study attempts to identify the relationship between the level of training and the use of independent contractors, temporaries, and subcontractors with regard to the level of ICT adoption. Findings generally appear to suggest that firms recognize the need for personnel training in order to exploit the advantages of ICT use; however, different types of working arrangements are subject to different treatment concerning training policies. The use of independent contractors is found to be related to an increase of training level, whereas temporaries appear not to benefit from any work-related training.

Elena P. Antonacopoulou and K. Nadia Papamichail develop theoretical arguments regarding the role of ICTs in organizational learning. Their chapter, “Learning Supported Decision-Making: ICTs as Feedback Systems,” highlights the biggest challenge for any organization as being the management of knowledge dispersed across a diverse set of knowledge carriers. The role of ICTs in supporting and extending the organizational memory is of particular concern. This chapter contributes to our understanding of the challenges the digital era presents us by proposing a socio-technical framework, which emphasizes feedback as the critical link connecting social systems and technical structures. The main thrust of the framework is the alignment of social structures and social actors in ways that seek to integrate different modes of learning with different models of decision making. This integration is normally supported by a range of decision-learning structures (in ICT systems), which create different feedback levels. These feedback levels are the main focus of the chapter, which makes a valuable contribution in extending debates of learning, decision making, and their relationship, demonstrating the inherent challenges of the digital era in using ICTs as social as much as technical tools.

In Chapter 18, “Leveraging Knowledge Assets in Firms of the Digital Era,” Gregoris Mentzas and Dimitris Apostolou present case study evidence of the strategic management of knowledge through the use of innovative information systems. The main contribution of the chapter is the development of the notion of strategic knowledge management, which goes beyond the common process-centric and product-centric approaches that dominate the literature. The latter focus exclusively on either the people or systems elements of knowledge management, whereas the proposed approach is more integrated, attempting to provide a balanced mixture of the technological and the behavioral aspects. The authors draw on the resource-based view of the firm and emphasize the perspective of knowledge as a corporate asset.

Among the various characteristics of the information revolution, it is notable that the ascent of knowledge and ICTs to center-stage makes it possible and important for us to observe, measure, reflect, and act upon the fundamental social and economic transformation that we are witnessing. In other words, in addition to the first-order impacts on established structures and practices, ICTs have a second-order impact on the change process itself. As reflective knowledge-driven actors, we can purposefully learn our way through that change process and we can employ our technological instruments to direct it towards desirable ends. The digital era presents an open-ended space of opportunity and threat. We have the possibility, indeed the responsibility, to navigate through peaks and troughs towards a world that is better, not just different. This requires the orchestration of technological innovation, economic organization,
and social governance, while avoiding the tides of technological hyperbole, economic myopia, or social manipulation, to which we often succumb. A tall order by any human measure. This book has a modest objective to contribute to the ongoing effort of understanding the change process by presenting combined multidisciplinary work in the field, with a view to sensitizing the student, researcher, and manager of the digital era to some of the fundamental transformations under way.