Preface

Information and knowledge have emerged as major sources of wealth in the recent past. There is a digital revolution and it has impact and influences on the consumers, producers, investors, exporters, importers, public policy makers, academics, students, consultants, administrators, lawmakers and all others directly or indirectly involved in various processes of the new economy. It has also huge challenges for all of the above and the shape of things to come will be determined by their response to the fast moving changes, additions and modifications in the Information, Communication, Technologies (ICTs) and their applications.

The pace of the revolutionary changes in the ICTs and their applications and their impacts, influences and challenges are more pronounced in the developed countries. The rest of the world is also catching up with them fast in the digital stakes.

Public policy makers in both the developed countries and the rest of the world and administrators, who have even bigger challenges than policy makers, will have serious problems to tackle. Censorship and freedom will be in conflict with each other in relation to the use of and access to the ICTs.

ICTs have ushered in a new era of global communication, production, trade and investment. It has implications for all of the players in the economy and society irrespective of whether they reside and work in the developed countries or in the developing countries. The digital economy is transforming the lives of people beyond recognition. There is a revolution in the way that things are produced and traded before they reach the final consumer. Also there is a revolution of rising expectations as the world is getting transformed to a global village and the access to the good things in life will no more be in the domain of the rich and influential, whether in developed or developing countries.

The buzzword is e-commerce. The term e-commerce goes beyond doing business electronically. Doing business electronically means that the conventional processes are computerized and are done on the Internet, however now it seems that the Internet is not merely an alternative to make a channel for marketing or selling product online. Instead the electronic marketplace enables the seller to innovate the whole business process from the producer to consumer to service by integrating them in the seamless whole, where product choices and prices are updated according to the customer information in real-time on web stores.

About the Book

This book is not about how to use the web or how to set up your web page for a successful business. This book provides information from socio-economic angle. As a number of books are already available about e-commerce or digital commerce, most of them provide information mainly from a technical angle and the socio-economic aspect had been neglected. Contrary to that, we would like to present the picture of digital information economy from the socio-economic perspective. This book covers various aspects of global production, trade and investment and the effects of the Internet from a socio-economic angle.

While paying attention to the current status of intertwined issues of electronic commerce in technology, standards, policy and legal issues, the focus is on many economic issues and aspects of electronic commerce that other books do not cover. This book aims to provide relevant theoretical frameworks and the latest empirical research findings in this area.

The change in the flow of information, computing and communication in the recent past has greatly influenced the world economy. In the emerging "digital economy," the players as well as the rules of the game are changing fast. Along with it has come a lot of confusion and uncertainty. The digital economy may bring potential invasions of privacy, more sophisticated and far-reaching criminal activities and host of other unknown problems.

The audience of this book is diverse. In addition to the academics, students and other knowledge workers, this book is intended for the business people who are using the Internet to seek a new customer, suppliers and partners around the world.

If a business person is already directly involved in international trade and business and business trade, either as a manufacturer, distributor, exporter and importer, custom broker and freight forwarder, trade financer, diplomat, then this book is for him/her.

If he/she is involved in the international trade, perhaps as a lawyer, management consultant, trade show organizer, site developer, business school professor, executive educator or someone who advises international companies, then this book is also for him or her.

The assembling of the chapters and editing of this volume was a very onerous task but has proved to be highly worthwhile and rewarding in the end. The response to the call for chapters was overwhelming. We received proposals from top scholars, professionals and practitioners from various parts of the world. We have received chapters from the USA, Canada, Japan, Australia, New Zealand, Korea, Singapore, India and many other countries. Authors with background from various cultural groups and with first-hand knowledge of the socio-economic impacts, influences and challenges of the digital economy has contributed to this volume.

Choice of the chapters for this volume was a highly challenging task, as we received an overwhelming response. Which chapter to include and which to exclude was very difficult. Chapters included in this volume have gone through a very rigorous review process. The ultimate choice of the chapters for inclusion in this volume were guided by the quality, relevance and coverage of the vital issues and proper analysis and depiction of the impacts, influences and challenges of the digital economy. The brief

summaries of the various chapters included in the book in the words of the contributors are provided below for the readers to make their own judgement:

The first chapter of this book is *Socio-Economic Impacts and Influences of E-Commerce in a Digital Economy* written by Sushil K. Sharma.

Electronic commerce or e-commerce is the exchange and processing of business transaction information using computers connected through a network. **E-commerce does have unique advantages for businesses.** It allows a shop, a show room or an office to open 24 hours a day, seven days a week. It also means that time zones are not a problem. A Web site can bring a prospect from the point of advertising and information directly to the point of sale, seamlessly, without involving any other medium. Adoption of new information technologies, particularly e-commerce, is expected to result in improvements in firm performance, such as reducing transaction costs and closer coordination of economic activity among business partners. E-commerce also is expected to facilitate entry into new markets or extension of existing markets and greater integration of systems with suppliers and customers. E-commerce is changing business economics and as a result many firms are re-engineering their core business processes. Suppliers and retailers are able to collaborate on product forecasts, product flow and inventory management decisions using the collaborative Internet-based networks between suppliers and retailers. In addition to reducing costs, e-commerce solutions permit customers to custom order products based on individual needs and preferences. Retailers are able to allow customers to mass customize orders based on virtually thousands of choices. The Internet's growth and e-commerce has begun to create fundamental change in government, societies, and economies with social, economic and political implications. These advances present many significant opportunities but also are having wide-ranging effects across numerous domains of society and policy makers.

As e-commerce continues to grow rapidly, it could have significant effects on the social and economic structures of economy. The impacts of these changes are diverse and may even widen the digital divide among nations, alter the composition of trade, disrupt labor markets and change taxation, may have ramifications for intellectual property rights, privacy protection, and data filtering, etc. Some of these effects of e-commerce are unintentional and create adverse business and personal conditions that could have societal consequences. Social and economic aspects of ICTs have been studied by a wide variety of researchers and practitioners for over 50 years. However, the influences of e-commerce are far bigger than imagined before. This chapter describes the various socio-economic impacts and influences that have been created by e-commerce in a digital economy.

The second chapter is *Re-Intermediation and Deferment through E-Commerce: Neo-Austrian Interpretation of Capital and Time* written by Parthasarathi Banerjee.

It is commonly believed that electronic commerce reduces intermediation and the time in a business circuit. This is an efficiency view. This borrows from the Chicago view. Alternatively, transactions cost economics (TCE) theorists argue that electronic commerce decreases transactions cost by way of reducing the distance between the producers and the customers. TCE too argues that dis-intermediation in electronic commerce reduces transactions cost and hence increases economic efficiency. In contrast

to this efficiency theory of dis-intermediation and of quickened money, this chapter argues from Neo-Austrian perspective that efficiency can refer to technological changes alone. Efficiency, it is argued, fails to increase rate of profit or innovation. Electronic commerce is an innovation in trade. Electronic commerce brings in several layers of possible intermediaries. In this chapter authors argue that electronic commerce keeps transactions incomplete and extends the completion of transactions indefinitely and thereby; electronic commerce instead of shortening the business circuit would extend such a circuit indefinitely. Indefinite extension of business circuits—that is the lengthening of business transactions—increases effectively the period of production. Austrian theory argues that capital is time. This theory argues that a longer period of production implies a higher rate of profit and an increase in capital. Based on this theoretical stance, the authors argue that electronic commerce enhances capital and increases the rate of profit by lengthening the circuit of transaction through re-intermediation and through an increased period of production.

Velocity of money or goods in an economy, as the efficiency theorist suggests, refers to technical efficiency. This efficiency refers to particular states of affairs of technology. As a result this perspective fails to explain why such technological states change or why certain particular economic agents reap great profits. Moreover, efficiency theorists' "profit" is actually a rent earned. Interpreters of TCE have assumed that electronic commerce brings about a frictionless or transactions-cost-free market. They have wrongly committed TCE to such an explanation. Moreover, reduction of transactions cost would increase efficiency and would not increase rate of profit or the capital and even would not hasten innovation. It follows contrarily that electronic commerce would increase transactions cost.

Internet pricing has shown personalized effects based on quality differentiation and on personalized offerings. Electronic commerce has opened up the possibility of offering extremely variegated personalized pricing. This forum can also offer equivalents of typical market place bargains. Production organization of a vertically integrated corporation stood upon standardization. Production of apiece products with variegated quality, chosen often by the buyer himself, demands that the entire chain of logistics and the supply chains get linked to the electronic commerce platform and that the stages in production are increased immensely and at each step of production each apiece product contains unique information. Such a picture of an electronic-commerce-led economy shows that stages of production must increase, that different economic agents must undertake value addition at each stage, that variability must increase and that mass production of personalized wares must hasten. In short, electronic commerce demands that an economy increase both its division of labor and the long period of production.

A long period of production refers to the entire input-output table of an economy. A short period of production refers to a specific transaction chain of a business or a sector. Electronic commerce increases the length of both these periods. Shackle discussed profit and its rate from the perspective of lengthened periods of production and an increase in the division of labor amongst economic agents who are speculators. Electronic commerce has opened up this opportunity. In these commerce intermediations, in particular, cyber mediations have increased and will continue to increase. Neo-Austrian framework offers a cogent explanation as how electronic commerce increases the rate of profit and the capital in an economy based on electronic commerce.

The third chapter is *Risk and Investment in the Global Telecommunications Industry* written by Irene Henriques and Perry Sadorsky.

Access to affordable technology to improve the flow of information is essential to the development of an economy. Closing the Digital Divide could bring many benefits to developing countries. In many ways, developing countries have the most to gain from improvements in telecommunications and information technology. Bringing the benefits of IT to developing countries is possible, but the governments of these countries need to be aware that the process is going to cost money and require institutional changes.

International investors will frequently calculate the cost of equity for their existing investments and their proposed investments. Development planners must be able to make their own cost-of-equity calculations so that they can see first hand how their investment projects compare with other investment projects around the globe.

Consequently, it is necessary to have good measures of equity risk for managers, planners, policy makers and investors. The cost of equity is important in valuing new investment opportunities and in evaluating the ongoing performance of established business projects. This is especially true in the new economy IT industry where an understanding of equity risk aids in the examination of the relationship between the IT sector and economic development.

In this chapter, quantitative modeling and simulation techniques are used to estimate various risk measures and the associated cost of equity for the global telecommunications industry. The approach is to calculate several different cost-of-equity values and then use simulation techniques to build up a probability distribution for each company's cost of equity. In this way, a clearer picture of where a company's cost of equity lies is developed.

Estimates of the cost of equity for a particular company vary widely and depend upon the methodology used. For a particular company, cost-of-equity values based on systematic risk tend to be lower than cost-of-equity values calculated from downside risk measures. For some companies, downside cost-of-equity values are twice as large as cost-of-equity measures based on systematic risk. This is true, even though all of the cost-of-equity values use the same risk-free rate and same risk premium.

One of the insights that emerges from this study is the fact that the average cost of equity for telecommunications companies in developing countries is not always greater than the average cost of equity for telecommunications companies in developed countries. This is borne out by the high cost-of-equity calculations for companies like Cable & Wireless, France Telecom and Nextel. In general, it is difficult to find evidence of regional differences in the average cost of equity of telecommunications companies. This is useful to a development planner who can then use a portfolio approach in which high-risk investments are combined with low-risk investments to promote an investment in a developing country's telecommunications industry. Closing the Digital Divide could bring many benefits to developing countries but international investors and development planners must be able to make their own cost-of-equity calculations so that they can see first hand how their investment projects compare with other investment projects around the globe.

The fourth chapter is *Reduction of Transaction Costs by Using Electronic Commerce in Financial Services: An Institutional and Empirical Approach* by Thomas Pfahler and Kai M. Grebe.

The authors face the subject of analyzing the impact of the increasing utilization of information and communication technology (ICT) and electronic commerce on the coordination of specific transactions in financial services. Bank transfers and stock purchases, as two relevant business processes commonly occurring in the contractual relationship between a financial institution and its customers, will be considered in detail.

For that purpose, the conceptual framework for the target analysis has to be developed at first. This requires the definition of the most important terms and the explication of major ideas. The basic principals of the New Institutional Economics and the instruments developed in the context of the Transaction Cost Approach specifically serve as a theoretical background for the study and all further argumentation. Subsequently, the chapter develops and implements a proposal how to exemplify and to compare the above-mentioned processes under the varying influence of certain technologies. This new approach will be specified and the proceeding will be elucidated in detail. The authors refrain from attempting to quantify transaction costs in an absolute way and concentrate deliberately on comparative considerations. Transactions will be decomposed and classified into different phases according to their devolution over the period under observation. The intention is to reveal the basic phenomenon and to document the reasons of the current utilization of ICT in this sector by emphasizing relative reductions of transaction costs through the use of electronic commerce.

After the development of the approach to quantify reductions of transaction costs, the model will be applied exemplarily on the two selected transactions. In detail, the model takes into account seven different phases of a transaction and seven different modes of coordination.

The empirical section of the chapter concentrates on existing technological infrastructures, growth rates, and diffusions rates of certain information and communication technologies. Available data will be analyzed, particularly for Germany. Moreover, certain indicators are introduced to qualify in detail present developments and impacts of ICT.

In the final stage the attained results and consequences of the outlined developments are eventually systematized and summarized. The authors criticize and comment on crucial points concerning the elaborated approach, its significance and limitations as well as its explanatory power. Last, but not least, an attempt is be made to relate the diffusion rates of the investigated technologies in the empirical section to the insights on reductions of transaction costs derived from the theoretical cost model. This will lead to a four-quadrant scheme to illustrate and classify present and future impacts of electronic commerce on financial services. On the basis of this visualization the chapter concludes with deducing a couple of final predictions and with giving a future perspective.

The fifth chapter is *The Spreading Use of Digital Cash and Its Problems*, which is written by Yutaka Kurihara.

It has been several years since the words “digital cash” and other related terms were introduced into the modern lexicon. Needless to say, the progress made in communication and information technology (IT) has been rapid, and change in the area of digital cash is no exception. The volume of such transactions is rising, yet analysis of this revolution in payment is limited, particularly in the academic fields.

Although e-commerce has been growing rapidly and attracting much attention, digital cash has not been a focus of such attention. Digital cash has some problems associated with it that need to be solved before its use can continue to grow, and the rate of growth is slowing at present. The logic behind replacing cash, checks and magnetic credit cards with digital cash is bound to prevail in the end, but there are many barriers that need to be overcome.

The author proposes that material cost reduction and service price are cutting resultant factors of the demand for electronic wallet transactions and the means by which digital cash can spread, the technology of IC (integrated circuit) card reformation can be developed, and price cutting on the supply side can occur. The popularity of the personal computer and the Internet has also skyrocketed in recent years. A general price decline for computer and communication tools has been ongoing as well, helping to promote online-type transactions at the supply side.

Moreover, it seems that the spread of mobile telecommunications has contributed to the development of digital cash. In the near future, interactive television will be used to make transactions. IT (information technology) has undergone a global revolution in many fields. Ubiquitous instruments in IT fields have appeared recently allowing for digital cash to develop much further.

There are two points that will be emphasized in this chapter. The first point is that given the essential characteristics of electronic money, its advantages and disadvantages should be carefully examined. It is quite certain that digital cash will be promoted. It also seems that IT progress is unstoppable, and fortunately IT can make our world a more convenient and efficient place in which to live. Nevertheless, there are a number of concurrent challenges with this change. None of these challenges are apt to be resolved swiftly or painlessly.

The second point is this: since financial institutions cannot stop this trend, it would be prudent for them to view it as a business opportunity. If they do not find ways to adapt, they will become obsolete and completely fade away from the market. By promoting e-finance, a company can gain market share and negotiating power over suppliers, as well as earn a profit. Monetary authorities worldwide should pay careful heed to the trend as well, guiding the “sound” market to maturity, taking care not to confuse exercising leverage with excessive intervention.

The sixth chapter is *Electronic Signature: The Core Legislation Category in Digital Economy* authored by Fjodor Ruzic.

E-business, as well as all of the active participants in the digital economy environment, raises a host of new legal issues that must cope with the fact that the technical expectations imposed by participation in the digital economy will increase. Three basic segments of the digital economy are converging, and each of them consists of one core category:

- *Infrastructure:* telecommunications infrastructure (the members of the society must communicate)
- *Services:* the content (the goal of communications is to transfer the content)
- *Legislation:* electronic signature (the goal is to compile rules of intercommunication processes in which the electronic content is interchanged)

Businesses that offer services and have taken to the Internet seriously have a responsibility to their customers to offer services in a secure manner. Security is a fundamental requirement for e-business applications using signature-based forms. Lack of trust is a significant problem for any e-business — the parties evolved in the e-business processes must feel trust in the people and companies that are doing business. In many traditional business relationships, trust is based on a combination of judgement or opinion based on face-to-face meetings, or recommendations of colleagues, friends and business partners. However, the e-business environment generally does not involve human interaction and, therefore, this new context requires a new understanding of trust.

Several techniques help in establishing online e-trust:

- Electronic authentication
- Electronic signature
- Escrow payment services (online)
- Public Key Infrastructure (PKI)

With the advent of electronic signatures, e-business is changing the way we sign and store documents. Thus, any business that wants to succeed in the digital economy must deal with electronic signatures. It is considered an everyday activity whenever a law or other arrangement requires a signature of person. Signature is needed as a medium for authentication in order to identify the person (the signer), to indicate the person's approval of the information communicated and, to be legally applicable. Most of the national laws currently in force provide that a signature, contract, or other record relating to such transaction may not be denied legal effect, validity, or enforceability solely because it is in electronic form. Like a handwritten signature, an electronic signature can be used to identify and authenticate the originator of the information and, it can also be used to verify that information has not been altered after it is signed. Electronic signatures play a key role in enabling electronic business by helping ensure that electronic documents are unaltered and have not been forged.

Considering the functionality and applicability of such issues, this chapter finds one key category that links all of the separate e-business legal issues in one regulated scene — the answer is done by introducing electronic signature as equivalence with handwritten signature no matter what type of information technology is in use. There are more legal environments, solutions and applications of an electronic signature from which several examples are described accompanied with the e-business view on electronic signature utilization.

The seventh chapter is *Impacts of the Digital Economy: The Shift to Consumer-Driven Competition and Life-Span Products* authored by Simon Mowatt.

This chapter examines changes in innovation and competition made possible in two traditional industries by the adoption of integrated information and communication technologies. The two industry cases used are drawn from the consumer magazine segment of the printing industry and the grocery multiple (supermarket) segment of the retail industry. Both of these industries have benefited from changes in communication within the industry value system made possible by the adoption of digital information management and communication systems.

The primary research in these industries was undertaken by an empirical program of qualitative, interview-based research focused on innovation networks. The informants were involved in production, distribution and retail, and identified by prior secondary research. The research also employed a census questionnaire survey of consumer magazine publishing firms. The survey response was checked for representiveness against a random sample of the industry population and found to be robust.

The chapter highlights the importance of consumer-drive innovation in consumer-facing markets. The industries examined had previously been conditioned by the economics of manufacturing. The development of complex innovation networks to supply consumer needs is examined and the innovation process is explored in detail. For the process of consumer-driven innovation, the importance of linkages to end-consumer and market experts is acknowledged—something is enhanced by the use of digital technologies. The chapter acknowledges that the development of the innovation systems described was the result of firms reacting to consumer needs. But in addition to this, the chapter offers the concept of "life-span" goods as those developed from the outset as having a short life dependent on changing consumer tastes and fashions. Life-span goods are emerging as firms continue to explore the possibilities of proactively using innovation systems to forge links with consumers. Within this environment firms have been recently acting more as project orchestrators: using their skills in developing innovation teams based on the deep knowledge of consumer activities to identify and supply new market segments.

Production in the innovation systems identified is undertaken across firms and coordinated by shifting and temporary alliances. This presents a challenge to economic analysis and to the theories of the firm grounded in a transaction-cost framework. Network-based and sociologically grounded theories of the firm have previously attempted to resolve the inadequacies of contemporary economic theory by emphasizing the importance of social ties and long-term embedded relationships. However, the examples explored in this chapter highlight the role of new technology in short-term non-embedded relationships as well. The project-based firm is identified as having features that are problematic for economic analysis. Despite this the chapter suggests that changes in competitive pressures towards consumer-facing competition may increase the prevalence of project-based firms with industrial economies. Finally, the chapter concludes by exploring some avenues for future research that offer new pathways for future theoretical understanding of project-based and network organizations.

The eighth chapter is *Digital Products on the Web: Pricing Issues and Revenue Models* written by well read Gary P. Schneider.

Products that exist in digital form can be bought, sold, and in some cases delivered, online. Some products exist only in digital form, such as software and certain types of information databases. Many more types of products exist in physical form, but can be digitized. These products include many forms of intellectual property such as text, pictures, photographs, architectural drawings, choreography notes, sound recordings, and video recordings. In some cases, digital products arise from the transmission of other digital products, as in the case of telephone and fax transmissions. The pricing issues that arise in the sale of these products are different from those that sellers face when pricing physical goods. These pricing issues lead to interesting opportunities for devising revenue models. These pricing and distribution issues affect the nature, quantity, and quality of competition in markets for these products. Some digital products are made available at no charge. Thus, an alternative revenue stream that is somehow related to the product must be devised. Some digital products are bundled with other products (digital or physical) to avoid some of the problems inherent in the pricing of digital products alone. Another pricing strategy is to create an artificial distinction within a subset of digital products and use differential pricing to extract the highest revenue possible from each set of customers for the product. Perhaps the most common pricing method is to use a licensing approach of one kind or another. Many digital products are, in their essence, things that are experienced by customers. They often have no meaningful physical existence separate from their experience. Providers of digital products must maintain a current knowledge of underlying technologies that are used or could be used in the future for delivery of their products. The ability of customers to adapt and reformat digital products is also an essential characteristic of digital products, a characteristic that can be affected by changes in technologies as well. The success of revenue models for companies that sell digital products depend on the nature of the product, the characteristics of the buyers, and the traditional practices in the industry. For most digital products, the effect of pricing and distribution strategy does not derive so much from the introduction of the Internet into the marketing channel as from the products' very nature as digital products. This chapter examines the nature of digital products, their pricing issues, and the efficacy of various revenue models that have been implemented by companies that deal in digital products.

The ninth chapter is *On Software Piracy* by Sougata Poddar.

The pervasiveness of the illegal copying of software is indeed a worldwide phenomenon. Economists argue that when the piracy takes place at the end-users level, the original software developer finds it profitable to allow limited piracy when the effect of network externality is reasonably strong in the users' market. The author argues that when the piracy is of retail in nature, the same logic cannot be extended, and shows that it is always optimal for the original software developer to protect its software even when the effect of network externality is strong in the end-users' market. The author suggests that piracy depends on more fundamental issues like demand environment, market structure, the nature of piracy and the nature of competition. The other issue covered here is the economic impact of piracy on the welfare of a society. The author discusses various policy implications on regulating piracy in developing as well as developed markets.

The 10th chapter is by the well-known Professor Stanley D. Brunn, *An E-Classification of the World's Capital Cities: URL References to Web Sites*.

The world's capital cities perform various political functions for their populations, contain embassies, consulates, and missions of other governments, and serve as headquarters for major corporations, cultural and humanitarian organizations. While social scientists have classified major cities based on population size, number of corporation headquarters, banks, and airline connections, the emergence of ICTs suggests additional criteria. The author used the number of URL references to Web sites listed in the Google search engine for 199 world capitals. These cities had nearly 120 million hyperlinks in mid-2003. The capital cities in Western Europe had the most hyperlinks (15 million), followed by Southern and Northern Europe (13 and 10 million respectively), and Central America (10 million). The capitals with the most references to electronic information were: Singapore (6.6 million), Washington, D.C. (5.1 million), and Mexico City (4.2 million). The next largest cities are recognized as major European cities and world cities, including: Luxembourg, Paris, Tokyo, Monaco, Madrid, Berlin, Rome, and London. Several Central American capitals, Panama, San Salvador, and Guatemala City, were in the top 15. The top 15 capitals had 46 million hyperlinks or 31% of the total. The regions with the fewest hyperlinks were capitals in Southern Africa (only 603,000) and the Pacific Islands (only 410,000). These had less than 1% of the total. Five capitals had fewer than 6,000 URL references each. They were the capitals of Bhutan, Micronesia, Tonga, Mauritius, and Nauru. Small prosperous city-states and major capitals in Western Europe and North America had the most hyperlinks. The fewest links are found for capitals in poor and rural Sub Saharan Africa and Southeast Asia countries. Capitals with multiple government offices, strong ICT economies, and dominant tourist economies have the most hyperlinks per capita. These were mostly in wealthy Europe and North America. The lowest values were African and Asian capitals that were poor and/or had repressive regimes. Regarding hyperlinks per capita, there were 48 capitals with more URL references than residents. The highest figures were for small city-states with dominant specialized functions, including administration, finance, tourism, telecommunications, and religion. These include: Vatican City, Vaduz, Singapore, Brussels, Luxembourg, Washington, D.C., Canberra, Ottawa, Monaco, Valetta, Yaren (Nauru), and Victoria (Seychelles). Those with the lowest per capita values were in South and Central Asia, West, East, and North Africa. Many have closed or repressive regimes or are poorly connected to the Internet. The major categories of information provided on the first "screen" of those capitals with the most hyperlinks were news stories, embassy (often US) information, and financial, tourism, and weather information. The first items of those capitals with the fewest hyperlinks were tourist sites, hotels, recreational activities, and local time. A number of subsequent topics are offered that merit additional research by scholars in various fields interested in e-commerce.

Online Services and Regional Web Portals: Exploring the Social and Economic Impacts is the 11th chapter written by Helen Thompson.

This chapter examines community empowerment, economic and business development, and equity of service as the issue of success and decline in regional and rural communities. This is explored with a particular focus on community informatics initiatives (CI) in Australia, there has been a vision for online services to be used to open up regional

communities to the rest of the world. Government support has been seen as enhancing the competence levels of local communities so they become strong enough to deal equitably in an increasingly open marketplace. But how effective have regional portals and other online initiatives been? This chapter explores whether economic and social benefits are generated via establishing and sustaining regional CI initiatives. Theory relevant to online communities is introduced to provide a context for the presentation of two case studies. The first case outlines how a geographical portal has been established and progressively enhanced as a central component of a strategy to facilitate an increase in the uptake of ICT and e-commerce in the Ararat region. Benefits have included the efficient linking of Internet-based information and services, more effective promotion of local businesses, tourism and regional events and also significant skills development and learning opportunities for community members. Ararat Online has been recognized as an exemplar online community, effectively demonstrating how regional development and online technologies can be combined. The second case demonstrates how online services can be established to leverage the activities of a community of interest. The Young Australian Rural Network (YARN) is an interactive online community for young people working in rural industries to keep in touch, collaborate, share ideas and strengthen networks. "Ownership" is effectively shared between the Federal Government and young people with multiple opportunities provided for participation and involvement. For examples, the author discusses contributing to online discussions, building a community site, adding a link, publishing events or suggesting news items. In both cases the same comprehensive portal platform and toolset has been accessed in the delivery of each community's web-based services. This platform has been designed by the University of Ballarat to meet regional and rural needs and to reduce evident challenges in terms of infrastructure, cost and skill barriers, which often negatively impact on the success of CI initiatives. It has been found that communities, just like businesses, benefit from accessing assistance in identifying appropriate online services for their particular circumstances. Case studies, such as those presented in this chapter, are effective in illustrating the impacts, influences and challenges that can be experienced in operationalizing and sustaining regional CI initiatives. Dissemination of the critical learning from cases such as Ararat Online and YARN can inform others about diverse factors which impact on the effectiveness and long-term sustainability of regional CI initiatives.

Chapter 12 is *ICT Growth and Diffusion: Concepts, Impacts and Policy Issues in the Indian Experience with Reference to the International Digital Divide* authored by Saundarjya Borbora.

This chapter examines the role of technology in economic and social development in developing countries, with a particular emphasis on India as an example. The concepts of ICT Growth and ICT Diffusion are examined. ICT growth refers to the growth of IT-related industries and services and their effect on employment, export earnings and outsourcing of activities. ICT diffusion refers to IT-induced development, which increases productivity, competitiveness, economic growth and human welfare from the use of the technology by different sectors of the economy. The chapter focuses on the direct benefits of ICT growth, paying special attention to the service sector. But the role of IT in economic development has not received adequate attention in India. From this, the paper reviews Indian governments' successful policies encouraging ICT growth

through the support of the export-oriented service industry. This industry has witnessed long-term growth primarily as the result of the increasing tradability and consequent internationalization made possible by changes in ICTs. However, the export focus policy has created enclaves within the Indian economy without significant forward and backward linkages. Whatever ICT diffusion is taking place is due to activities of industry and discrete public and private initiative at the absence of any specific central government policy for ICT diffusion in India. The chapter examines both international and domestic digital divides. Real disparities exist in access to and in the use of information and communication technology between countries, the International Digital Divide, and between groups within countries, the Domestic Digital Divide. Evidence suggests that International Digital Divide between may be increasing. Examining the present unequal access to ICT, it may be stated that new technologies reinforce the disparities between developed and developing societies. But late entrants such as India have the advantage of access to frontline technologies and cost-effective infrastructure development without the sunk costs in extent systems carries out by many developed countries. There exists real opportunities for promoting ICT diffusion through involvement of the society at large. This chapter suggests that in order to maintain its relative technological position and to increase its comparative advantage in the IT sector, government policy should focus on domestic ICT diffusion. The chapter reviews several local public, private and public-private initiatives to spread the use of ICT throughout Indian regions that has been successful and may serve to offer examples for future development. The author concludes that ICT-driven development may be achieved with supportive central government policies in order to maximize the wider economic and social benefits, lessening both the International Digital Divide and the Domestic Digital Divide.

The 13th chapter is *Digital Technologies and the Cross-Border Expansion of South African Banks*, which has been written by Joanne Roberts and Chipo Mukonoweshuro.

The increasing intensity of competition since the 1970s, together with the deregulation of financial markets and the internationalization of financial services, has driven the application of digital technologies in the financial services sector. However, the impact of digital technologies combined with the deregulation of financial markets has led to a growing concentration of financial service activity in the global cities of developed countries. Nevertheless, digital technologies do influence the financial services sectors in the developing countries, both in terms of the availability and cost of capital, consumer access to services and the organizational development of service providers. This chapter focuses on the impact and role of ICTs in the development of financial services organizations in the developing countries of Africa, and, in particular, on the international development of South African banking organizations.

Through a review of relevant literature and evidence, together with a number of case studies, this chapter explores the role of ICTs in the international development of South African banking organizations. The aim of this chapter is to explore the role of digital technologies in facilitating the cross-border expansion of South African banking organizations. Specific challenges do exist for financial sector organizations operating in Africa where the ICT infrastructure is poorly developed. Nevertheless, it is argued here that South African banking organizations derive important advantages from the use of

ICTs in their expansion into neighboring countries. Using Dunning's (1989, 1988) eclectic approach as a mechanism with which to assess the importance of digital technologies, ICT is explored both as an ownership-specific internal capacity, and as a locational-specific factor influencing the geographical pattern of international expansion, and as a facilitator of the internalization of cross-border banking networks. This chapter highlights the opportunities and challenges related to ICTs for South African banking organizations. In so doing, the chapter will make a contribution to the understanding of intra-African foreign direct investment in the banking sector and the emerging digital economy in developing countries.

A review of banking in Africa with particular attention focused on South Africa is provided, followed by an analysis of the internationalization of South African banking organization. The use of digital technologies in the delivery of services and the organization of banking networks is then explored before their role in the South African banking organization networks is investigated. Finally, conclusions are drawn regarding the role of digital technologies in the international development of South African banks.

Technology and Culture: E-Commerce in China is the 14th chapter of this book written by Alev M. Efendioglu and Vincent F. Yip.

The number of Internet users around the world has been steadily growing and this growth has provided the impetus and the opportunities for global and regional e-commerce. As part of this trend, over the recent years access to technology in China dramatically increased and it is projected that 10.3 million PCs were sold during 2002, making China the 3rd largest market after U.S. and Japan. Furthermore, China is now second only to the United States in the number of home Internet users with nearly 57 million people with web access at home. Internet subscriptions are growing by 5-6% every month, and in just three or four years 25% of the population could have Internet access, translating to over 250 million people. During 2002, 31.67% of Internet users in Shenzhen made online purchases. However, as with the Internet, different characteristics (infrastructure and socio-economic) of the local environments have created significant levels of variation in the acceptance and growth of e-commerce in different regions of the world and in China. The author's research focuses on the impact of these infrastructures (payment systems and access to technology), and socio-economic factors on e-commerce development in China. The findings provide insights into the role of culture in e-commerce, issues such as "socializing effect of commerce," "transactional and institutional trust," and "attitudes toward debt," that may impact a broader acceptance and development of e-commerce in China. To identify the current infrastructure and socio-economic influences on the development and growth of e-commerce in China, a 20-question questionnaire was administered to a total of 252 individuals that formed the study group. The study participants were located in Beijing, Shenzhen, Shanghai, Guangzhou, Wuhan, and Shandong during the time of the study, worked for different types of organizations (Joint Ventures, State-Owned Enterprises, Multi-National Corporations, etc.), resided and worked in different regions in China, and had different educational levels, professions, and gender. The participants identified some infrastructure and social issues that will impede and be obstacles to full development of e-commerce in China in the near future. Among the most identified and repeatedly men-

tioned issues were lack of credit cards (availability of them for the general public in China) and convenient payment means, poor distribution logistics, lack of specialized, trustworthy online merchants of reasonable size (too many small players facing many bottlenecks and without necessary resources to set up e-commerce systems), an imperfect legal system, and lack of large scale telecommunication transmission capability (broadband). Overall, the respondents were reasonably positive about the availability of hardware/software, government and industry support for IT in China and were overwhelmingly less positive when asked if the Chinese culture "supports" the propagation of IT and e-commerce. The group thought the Chinese consumer society was not quite ready (lack of confidence in technology and off-site transactions, online culture, and overall sophistication of the general public) and the conditions were not "ripe" for e-commerce. In this chapter, the authors present and discuss the findings in detail, and propose some strategies for success for e-commerce in China.

The 15th chapter is *Internet Economy of the Online Game Business in South Korea: The Case Of Ncsoft's Lineage* written by Kyonghwan Park.

This chapter attempts to lay the groundwork for in-depth discussions on the economic, social and cultural dimensions of the online game business as one of the most successful forms of the contemporary digital contents industry using the Internet. Theorizing the Internet as a "general purpose technology" is a useful framework to elucidate its "complementary" role in commerce and telecommunication sectors, and its "general-purpose" diffusion in socio-cultural spheres. However, the framework has an overall danger in downplaying the significant "discontinuity" of the emerging Internet economy, which takes the Internet "network" itself as a core, as an alternative economic resource and a social "space" of economic activities. Based on this problematic, this chapter explores the way in which the online game as a form of digital economy has evolved both through and within the "space" of the Internet.

For an empirical analysis, this chapter investigates the case of the South Korean online game company NCsoft's Lineage: the blood-pledge. The rapid success of NCsoft's Lineage is mainly indebted to two factors. The first is the formation of South Korean national innovation systems (NISs) in the recent development of the Internet broadband infrastructure. Since the 1997 financial crisis, the South Korean government has implemented massive projects to construct nationwide, high-speed Internet networks in order to boost a knowledge-based and techno-intensive national economy. About 24,000 broadband-based Internet-cafés on every street corner in built-up areas played a crucial role in the success of the online game business, not only because Internet-cafés provided high-quality Internet service along with low price, but also because they were pivotal "off-line" places of the online game users' communities. The second is the company's technology-intensive, elaborate efforts at constructing the cyberspace of Lineage as a social space in-between the real and the imaginary. Lineage is a spatial simulacrum consisting of not only hyper-real images of basic realities, but also its own spatio-temporal scale. It is a distinct social space in which game users share common time-space compressed experiences and socialize with other game users in order to survive the cyber-society of Lineage. In short, the broadband Internet infrastructure and the construction of the game users' community constitute two necessary conditions for the economic success of the online game business.

Although a digital economy could not be completely separate from conventional economic principles, the online game business contains emerging forms of new economic space not only in-between the real space and the virtual space, but also between the production and the consumption. The author conceptualizes such a socio-cultural economy of the Internet business as the economy of a "third" space. The case of NCsoft Lineage implies the third space is not just social, but also economic space with the game users' real consumption of simulacra and its spread effects on other off-line economic sectors. The emergence of the digital economy containing certain forms of new economic space would give rise to a neo-economic environment in which many businesses such as e-business could explore new economic opportunities.

The 16th chapter is *Opportunities and Challenges of the New Economy for East Asia* which is written by Donghyun Park.

The first part of the chapter discusses the economic impact of the New Economy on East Asia. First, the author discusses the potential economic benefits of the New Economy for the region. The author argues that East Asian countries should focus on applying existing IT technology to improving the efficiency of the manufacturing sector, the main engine of the region's economies. Second, the author points out that while the IT revolution may enable East Asian countries to leapfrog some technological barriers, it does not enable them to leapfrog sound economic policies. Furthermore, the potential of IT will remain largely unfulfilled in the absence of complementary investments such as a sound infrastructure for transportation and logistics. Third, East Asian countries must fulfill certain pre-conditions to make sure that the New Economy takes hold. Above all, they must liberalize their telecommunication sectors so as to improve the quantity and quality of telecom services. They should also make the necessary investments in human resource development. In short, although the New Economy holds out tremendous economic potential for East Asia, realizing that promise will require a lot of determination and hard work. That promise is already being realized in the more developed countries of the region, namely Japan and the NIEs, and the author looks at some examples of their success in the New Economy.

The second part of chapter deals with the implications of the IT revolution for regional development. The second part is essentially an application of the first part, which addressed the broader issue of economic development, to the narrower issue of regional development. East Asian countries suffer from significant inter-regional economic inequalities. Such inequalities inevitably interfere with well-balanced economic development and impose costs on both the magnet cities and the rest of the country. A more balanced pattern of development is therefore desirable, and IT can make significant contributions toward this objective. In particular, by reducing the concentration of information and knowledge in the main city and disseminating those valuable resources to the rest of the country, IT reduces the inequality of opportunity that lies at the root of the inter-regional economic inequality. However, IT by itself will not enable poorer regions and cities to catch up with the main cities, and will facilitate regional development only if the other fundamental ingredients of regional development are in place.

In the last section, this chapter summarizes the main points and provides some concluding thoughts. In addition, policy implications of the analysis for FDI in Asia, along

with implications for potential foreign investors, especially in the telecommunications industry are given. FDI into IT sectors can not only be profitable for the investors, but also can promote the host country's economic growth.

Digital Engineering Campus: Economics, Acceptance, and Impact is the 17th chapter of this book written by Milind J. Mahajan, Sunil S. Umrani, and Narendra S. Chaudhari.

Widespread uses of many web-based, e-learning approaches have established the usefulness of these technologies. The cost of development of contents is a major component for appropriate "soft" infrastructure for such web-based, e-learning approaches. To have a wider impact of these technologies on the society, we need to have the models to keep the development cost self-sustainable within the society. In advanced countries, in the educational sector, the costs are mostly borne by government / public supported educational institutions. In developing countries like India, there is not sufficient financial support. However, there is a huge market. Tapping such a market at an early stage is important.

To highlight these issues, in this chapter, the authors introduce two existing web-based, e-learning approaches, and examine economic and social aspects of their usage in the society. Specifically, the authors first briefly introduce an e-learning initiative in Singapore. Secondly, the authors introduce a scenario in developing countries like India. The demand for an engineering degree within India has led to widespread engineering education within the country. While there are a few "elite" institutes like IITs, that have been funded heavily by government, offering engineering degrees, the wider societal impact is increasingly being driven by a large number of private educational institutions. However, such an expansion has resulted in concerns for maintaining necessary educational standards. The cost-effectiveness and success of low-cost, web-based, e-leaning initiatives is the main focus in the discussions within this chapter.

In this respect, the authors briefly introduce the role of universities and other government agencies for monitoring educational standards. Next, the authors give a scenario of an engineering education at a wider level with a focus on a typical state. The authors have chosen to focus on Maharashtra state for this purpose. A brief sketch of the socio-economic perspective for the adoption of web-based, e-learning in the context of engineering education in India is examined. The impact of non-governmental organizations (NGOs) is illustrated through the detailed description of a case study regarding the experiment called "Digital Engineering Campus" (DEC). DEC is an NGO initiative to provide supplementary educational facilities for engineering colleges in India. Considering the economic as well as social benefits, using the detailed case study of DEC, authors argue that developing countries like India have tremendous growth potential in web-based education. Further, the experiences of developed countries with web-based education will prove to be highly beneficial for developing countries like India.

The last chapter of this book is *Corporate Strategies in a Digital World: Supply Chain Management and Customer Relationship Management – Development and Integration-Focus* written by Purva Kansal and Keshni Anand Arora.

These days, the majority of management literature stresses the concept of "learning organizations," i.e., an organization's capacity to change. However, it is not easy for people to accept this fundamental especially when it comes to the Internet and technology's growing importance in business operations. They claim it as a temporary trend that will leave little visible change in the way business is conducted. For these businessmen the philosophy seems to be "keep making better products and offering new services, and the customers will keep buying." They ignore changes occurring in the buying habits of customers and ignore the impact of technology.

There are some businesses that are happy to follow the leader and adopt tools like supply chain management. Supply chain management is a recognized discipline to shorten cycle times, reduce inventories, decrease logistics' costs and streamline communication process across the business network.

On the other hand are the businessmen who understand the learning organization concept and develop a forward orientation. They are prepared to ride the technology wave to new heights and accomplishments by using technology as a defining element in business operations. This chapter suggests a new approach for this new breed of Entrepreneurs. In this chapter, the authors are trying to give supply chain management a customer orientation and study its results. The authors highlight the synergistic advantage of linking supply chain management with customer relationship management into a tightly knit network using technology. The main focus is on finding solutions to deal with Internet-empowered customers and to learn how to apply technologies demanded in the new digital economy.

All the chapters included in this book are original and have been published for the first time. This book covers various aspects of global production, trade and investment and the effects of the Internet from a socio-economic angle.

While paying attention to the current status of the intertwined issues of electronic commerce in technology, standards, policy and legal issues, the focus is on many socio-economic issues and aspects of the electronic commerce that other books do not cover. This book aims to provide relevant theoretical frameworks and latest empirical research findings in this area.