
Preface

Changing Business Landscape

In the present day digital economy, business values and competitive advantages lie beyond the boundaries of the enterprise, focusing on the relationships with business partners. The changing business landscape not only affects how enterprises conduct business with their suppliers, customers, distributors and other trading partners, but also how they must manage their businesses internally.

Collaborative e-commerce, which is the wave of the future, requires dynamic creation of trading relationships with new partners, public and private business process automation and increased adaptability and flexibility delivered by open architecture based integration middleware. In order to truly automate external trading partner interactions, the back-end internal business systems of the enterprises need to be seamlessly integrated into the same process.

Transforming an organization to compete in this environment mandates enterprise application integration (EAI) and business-to-business integration (B2Bi). They are the pervasive enablers of most current business strategies, such as collaborative e-commerce, collaborative networks, supply chain management (SCM) and customer relationship management (CRM) across multiple channels of delivery, including wireless devices and the Internet.

B2Bi strategy should be laid out and executed in such a way so as to: have an integrated, real-time application-to-application, system-to-system interaction with all the existing and new trading partners; eliminate all manual steps in business processes; conduct secure and real-time commerce transactions over the Internet; have the flexibility to accommodate the different mode of interactions of each partner; and, finally, have the ability to adapt to change — quickly and easily in this

dynamic age of B2B collaborative e-commerce. This is what B2Bi is all about — the end-to-end automation and integration of cross-organization business processes, data, applications and systems.

Description of the Book

B2B Integration (B2Bi) provides a comprehensive guide to the key elements of successful B2B integration and collaborative e-commerce by highlighting business needs, technologies and development strategies. It clarifies and demystifies the intricate dependencies among all the components of B2Bi, including integration patterns, enterprise application integration (EAI), business process management (BPM), internet security, extensible markup language (XML), XML standards, Web services, middleware technologies and integration brokers. The book includes future technologies that will have a significant impact on B2Bi architectures, such as intelligent software agents, wireless technologies and peer-to-peer (P2P) computing. Furthermore, it includes in-depth discussion of B2Bi-enabled applications such as supply chain management, e-procurement, e-marketplaces and collaborative networks. Finally, the book provides a suitable framework for the design, development and implementation of B2B integration, along with several real world case studies. This framework is based on the latest XML standards defined in the B2B domain, such as RosettaNet, ebXML and Web services, to support cross-organization business processes, data, applications and systems.

In crux, the book provides practical guidelines to companies so as to rapidly implement a successful B2Bi strategy and prepare them for the next wave of B2B integration and collaborative e-commerce.

Why This Book?

There are several books on the shelves, which cover just one or the other aspect of B2Bi. But I dare say there are none that discuss all the technical and business components, tools and frameworks of B2Bi and illustrate how to conceptualize and implement a successful B2B integration solution, all in one single binding.

In this book, I ventured to take a unique and systematic approach of combining the technical and business aspects of all the components of B2B integration. I have endeavored to show where and how the individual components link with one another and in the whole chain of B2Bi.

The book covers a mix of business management and technology trend issues, presented with examples, general conclusions and recommendations. The book discusses how companies can speak the same language when doing business with companies spread around the globe. It presents business integration models, which would enable companies to integrate their enterprise systems with digital markets and strategic business partners. It also prompts one to “imagine the future” through an in-depth analysis of possible scenarios for future business-to-business integration models.

Who Should Read This Book?

This book will be useful for business executives, MBA students, IT managers and programmers looking for a clear, detailed explanation of the whole landscape of B2B integration, insightful review of the current technologies being used in B2Bi and knowledge of the future trends in B2Bi domain. It will be equally appealing to the senior management in the industrial-age companies, Internet services companies and entrepreneurs who are heading for B2Bi, which is still largely undefined and cryptic. This book will be useful to CIOs and decision-makers keen to improve productivity using B2Bi, while building upon prior investments, and prepare them for the next wave of collaborative e-commerce.

In short, this book is useful to everyone who is seeking a clear understanding of how to leverage the convergence of IT with business processes to attain the much sought-after strategic advantage, greater revenue, greater profit and more-competitive market positioning.

How is This Book Organized?

This book is modeled on an architectural design, laying the foundation first and then building the structure with distinct elevation features.

The organization of chapters is as follows:

Chapter 1 — Introduction

This chapter introduces the subject of B2Bi and collaborative e-commerce, providing a roadmap for a successful B2Bi implementation. It covers the key features required in a B2Bi solution and its return on investment (ROI).

Chapter 2 — Components, Benefits, Challenges and Applications of B2B Integration

This chapter provides an overview of all the major components of B2Bi. It discusses the benefits enterprises would reap and the obstacles they may be confronted with during the process of implementation of B2Bi. Furthermore, it introduces some of the most important B2Bi-enabled applications to the readers.

Chapter 3 — Integration Patterns

This chapter explains the different types of B2B integration patterns: data oriented integration (data replication; extract, load and transform solution; data warehousing; and data federations), portal oriented integration, direct application integration (API, RPC processes) and business process oriented integration (closed and open processes). It discusses the right B2Bi implementation pattern for individual companies.

Chapter 4 — Enterprise Application Integration (EAI)

This chapter describes the integration of internal systems, such as legacy applications, CRM, SCM and ERP, which constitute the backbone of B2Bi implementation. It also provides an introduction of the leading commercial EAI brokers and convergence and divergence of EAI and B2Bi.

Chapter 5 — Business Process Management (BPM)

This chapter discusses the fundamentals of business process management (BPM) as they relate to B2Bi. It provides an in-depth discussion on process modeling, workflows, workflow management and leading BPM software solutions.

Chapter 6 — Extensible Markup Language (XML)

This chapter provides an introduction to extensible markup language (XML) and its components. It also discusses the traditional mode of communication electronic data interchange (EDI), its coexistence with XML and features of XML/EDI servers.

Chapter 7 — XML Standards For E-business

This chapter is devoted to the description of different XML standards that enable XML-based, cross-organization business process integration. It covers RosettaNet, ebXML, cXML, SOAP and BizTalk with elaborate examples.

Chapter 8 — Middleware Technologies

This chapter reveals all the major middleware technologies, using which B2Bi solutions are implemented. It specifically discusses TP monitors, message oriented middleware (JMS, MQSeries) and distributed objects and components (J2EE, COM+, CORBA).

Chapter 9 — Integration Brokers

This chapter explains all the components, architectures and services of integration brokers. It also introduces all the major commercial integration brokers enabling B2Bi from BEA Systems, IBM, Vitria and webMethods.

Chapter 10 — Internet Security

This chapter dwells upon the security aspects of B2Bi. It explains the different types of security solutions for B2B transactions over the Internet, along with real world case studies.

Chapter 11 — Web Services

This chapter brings in the latest concept in the B2B world — Web services. It explains the subject with supporting technologies — UDDI, WSDL, WSFL and SOA with adequate examples.

Chapter 12 — Wireless Technologies

This chapter focuses on the explosive growth of wireless technologies for B2B e-commerce and its impact on B2Bi architectures. It also details technologies such as WAP, WML and WMLScript, along with explanations of security aspects involved in mobile systems.

Chapter 13 — Software Agents

This chapter describes the fundamentals of software agents and how they automate the manual processes that are involved today in B2B e-commerce.

Chapter 14 — Supply Chain Management (SCM)

This chapter deals with the fundamentals of supply chain management (SCM), e-procurement, e-logistics, SCM systems and how SCM enables collaborative e-commerce.

Chapter 15 — E-marketplaces and Collaborative Networks

This chapter brings under focal analysis the different types of B2B e-marketplaces along with services offered by them. It discusses the integration challenges that crop up while participating in e-marketplaces.

It also introduces the need, concepts and examples of collaborative networks.

Chapter 16 — B2B to P2P Evolution

This chapter deals with the evolution of peer-to-peer-based applications and architectures that would play a prominent role for B2Bi in the future.

Features of the Book

Some of the key features of the book include:

Key concepts

Each chapter begins with a discussion of the key concepts related to the subject under study. Readers will find this very useful as it introduces the ensuing chapters.

Discussion of leading software solutions

The book provides in-depth coverage of the latest commercial softwares available in the market. This will acquaint readers with the developments in the software industry as far as B2B integration solutions are concerned. It will also be extremely helpful to the decision-makers to have a review of various solutions for B2Bi out there.

Case studies

There are several real world case studies cited in each chapter. They have been chosen very carefully to illustrate practical usage of the concepts under focus.

Graphics/Images

The book contains a lot of relevant images, which provide a pictorial view of the text concerned. Readers will find the images very illustrative and useful in grasping the theory presented therein.

Acronyms

The book contains acronyms of technical and business terms that are relevant to the subject of B2B integration.

References/Bibliography

The book acknowledges various sources used by giving references and a bibliography. This will help readers to plumb the originals if they so desire.

Editors and Contributors

I consider myself extremely fortunate in having got the invaluable support and able guidance of several persons from different walks of life. They are distinguished professionals who have carved a niche for themselves in their respective fields. Undoubtedly, their contribution has embellished this book. It is my privilege to give hereunder a pen portrait of these contributors.

Dr. Marcus Healey

Dr. Marcus J. Healey is the Strategy Consultant for InfoFirst Inc., USA. Before joining InfoFirst, Dr. Healey was the Director of Engineering Implementation at Mobilocity, Inc., U.S., a thought leader in wireless services. Prior to Mobilocity, Dr. Healey was a Project Engineer at Organic, Inc., a prominent web integrator in New York City. While at Organic, Marcus managed client projects from an implementation perspective and acted as a technical liaison to the Strategic Services and Business Development groups. Prior to Organic, Dr. Healey was a Program Director and Adjunct Professor at the New Jersey Institute of Technology where he pioneered the EnviroInformatics program as the Director of the New Jersey Program for Information Ecology and Sustainability.

Dr. Healey has six years of direct IT experience, possesses multiple MS degrees in science and engineering, an MBA and a Ph.D. He brings a diverse technical and business background, broad public and private

sector experience and extensive editing skills. He is the primary author of one book in Environmental Science (*Pollution Prevention Opportunity Assessments*, John Wiley & Sons © 1998) and one of four co-authors on a soon to be published book (*Information Mining on the World Wide Web*, Kluwer Publishers © 2001). Dr. Healey is the author of over fifty publications and presentations in the fields of Environmental Science and Information Technology.

Dr. Shyam Samtani

Dr. Shyam Samtani is presently Head of the Department, P.G. Department of English, Indore Christian College, Indore (India). He is also on the visiting faculty of Devi Ahilaya University, Indore. He has been in the teaching profession for the last 35 years. During this period he has supervised scores of dissertations both at M.A. and M.Phil levels. He has presented papers at various national seminars and also published many research papers and supervised Ph.D candidates. He has co-authored books for use by university students. He has also been a Resource Person for the Refreshers/Orientation courses conducted by different universities. Dr. Shyam Samtani has done the language editing of this book.

Pawan Samtani

Pawan Samtani has over eleven years of IT, MIS and Finance experience. He has extensive experience in different industries like E-commerce Consulting, Oil and Gas, Manufacturing and Finance. He is currently working as Country Operations Manager, India, with Oracle Corporation, overlooking the implementation of various multi-million dollar projects. Prior to joining Oracle, Pawan was the Senior Vice President with Petrogas LLC where he was overseeing the implementations of Ariba e-Marketplace and Oracle Financials in several offices of the company all around the world. His responsibilities include project management, strategic planning and supervising finance operations.

Prior to Petrogas, he was working as a Senior Consultant with Whittman Hart, U.S., supervising several SAP implementations world over. He has worked with Premira Fashions Limited, Onida Finance

Limited, Analysis Finance Limited and M. Mehta & Company, Chartered Accountants, in various capacities.

He has extensive experience with the re-engineering of business practices for various departments. He also specializes in implementing and customizing ERP packages to integrate with the business process, workflow and existing IT applications of the company. He possesses in-depth knowledge of data modeling and database schema designing, supply chain management, logistics systems and their integration with e-commerce. He has worked with reputed concerns in different parts of the world (United States of America, India and The Middle East) with different business practices and cultures.

He is an Associate Member of Chartered Accountants of India. He also has an MBA from Baruch College, New York, U.S.

Kenneth Tamburello

Ken Tamburello is a Senior Consultant Specialist at Bluesphere (an EDS company), U.S., the industry's largest interactive integrator and e-business consulting firm. Ken is the e.Design and e.Marketing delivery manager for the New York Metro region, responsible for delivering solutions in the areas of Enterprise Application Integration (EAI), workflow automation, security and enterprise portals.

Prior to Bluesphere, Ken was an Associate Director at Bear Stearns & Co., NY, where he was responsible for the delivery, support and enhancement of a mission-critical, multi-million dollar Web-based account portfolio database system. Prior to Bear Stearns, Ken was a freelance consultant designing and developing client-server solutions.

Ken has over 6 years IT experience, having worked in the past with PowerBuilder, Sybase, Oracle, UNIX, Java, UML and database design and modeling. He received his MS in Engineering from Stevens Institute of Technology, U.S., and his BS in Engineering from Rutgers University, U.S.

Deepak Bajaj

Dr. Deepak Bajaj is the Course Coordinator of Project Management at the University of Technology Sydney (UTS). Dr. Bajaj served as Director of the Project Management Program prior to his present role.

Dr. Bajaj has fifteen years of combined experience in contracting, consulting and academia. Dr. Bajaj has a PhD in the area of strategic risk management and the topic of ‘The Development of a Risk Averse Business Strategy in the Procurement of Constructed Facilities’ and a Masters in Construction Management. He brings a diverse technical, research and business background. He has published extensively in the area of project risk management and has been author and co-author of book chapters in the past. He has been editor of the AIQS Refereed Journal and referee to a number of journals in the area of project management and economics. Dr. Bajaj is the author of over forty publications and presentations in the field of project management, risk management and information technology in the construction industry.

Dimple Sadhwani

Dimple Sadhwani is Senior Software Engineer at Island ECN based in New York, USA. Prior to joining Island, Dimple worked as a Senior E-commerce Consultant with BusinessEdge Solutions, a next-generation consulting firm providing industry-specific e-business solutions. She was a project manager for several eCRM, B2B integration and EAI projects. Prior to that she worked with Citicorp Information Technology Industries Ltd. (CITIL), based in New Jersey, USA, and Bombay, India. She has a Bachelors in Computer Science from VJTI, Bombay. She has worked on and evaluated the latest tools and solutions in the B2B, EAI and Internet security fields.

Not the Final Word

Justice can hardly be done to such an elaborate subject with all its dimensions and ramifications, on an intensive or extensive scale, in a book of this length. It would require more than one volume to cover the subject exhaustively. The endeavor is to acquaint the readers with the concepts in a nutshell in one place without having to wander about to different sources for various topics related to B2Bi.

I wish I could promise you a book perfect in every way. There are bound to be some errors, omissions and typographical errors. I am open

to corrections and modifications. I shall appreciate critical opinions and objective suggestions from the esteemed knowledgeable readers, which would shed light my future undertakings. The suggestions can be sent to me via e-mail at:

gunjan_samtani@yahoo.com or **gsamtani@ubspainewebber.com**

I will respond immediately. Well, that's it for now. I would like to welcome you to the exciting world of B2B integration. Good luck!

Gunjan Samtani

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