

Virtual Worlds and E-Commerce: Technologies and Applications for Building Customer Relationships

Barbara Ciaramitaro
Ferris State University, USA

Detailed Table of Contents

Foreword	xiii
Preface	xv
Acknowledgment.....	xx

Section 1 **The Changing Face of E-Commerce**

Chapter 1

Virtual Worlds: Definition, History and the Elements that Compose Them.....	1
--	----------

David Oyarzun, Vicomtech, Spain

Maria del Puy Carretero, Vicomtech, Spain

Amalia Ortiz, Enne, Spain

Alex García-Alonso, University of the Basque Country, Spain

This chapter presents an introductory overview of virtual worlds. Its purpose is to give the reader basic knowledge about the definition and elements of a virtual world. Moreover, it discusses several open issues that should be taken into account when new virtual worlds or new applications running over existing ones are designed.

Chapter 2

3D3C Real Virtual Worlds Defined: The Commerce Challenge.....	16
--	-----------

Yesha Sivan, The Academic College of Tel Aviv - Yaffo, Israel

In this chapter, Dr. Sivan proposes a paradigm referred to as 3D3C definition. In it, he defines virtual worlds as an integration of four factors: 3D – the ability to present virtual world contents in 3D format; Community – the ability to act and communicate with others in groups; Creation – the ability to allow users to create content and value; and Commerce – the ability to earn real money from actions in virtual worlds.

Chapter 3

From E-Commerce to V-Commerce	42
<i>Susan Jones, Ferris State University, USA</i>	

This chapter provides an overview of e-commerce marketing focused on history, trends and future predictions for the field – leading into the development and application of virtual worlds and v-commerce. It includes a survey of developments in marketing convergence, as businesses integrate their customer-centric online/offline marketing efforts and databases. The chapter continues with an overview of business-to-business Internet marketing, including the profit strategies businesses employ in the online world. To set the stage for the chapters to come, the chapter concludes with a preview of what is on the horizon for “v-commerce” – with opportunities and applications that are capturing the imagination of consumers and marketers alike.

Chapter 4

Convergence of Online Gaming and E-Commerce	61
<i>Tracy Harwood, De Montfort University, UK</i>	

This chapter explores the characteristics and features of online games and their potential for e-commercial exploitation via the communities of interest that have evolved within and around the gaming environments. The author discusses their evolution to date and how they have intertwined with the evolution of commercial interests in the internet for online business (e-business). Beginning with a review of the emergence and transformation of games and commercial contexts, the first two sections of the chapter subsequently review relevant industry reports, research and theoretical underpinnings to the contemporary online gaming, virtual and mirror world context for e-commercial activities. This is then drawn together in the final section, which discusses the emergence and convergence of online economies and the issues arising from their increasing integration with the real world.

Chapter 5

Evolution of Business in Virtual Environments	90
<i>Rita King, Dancing Ink Productions, USA</i>	

This chapter will examine the evolution of some of the most remarkable projects taking place within this virtual world, featuring the passion of early adopters, the role of the media, current examples of virtual work, the evolution of the virtual workforce, the shift in the role of managers toward a collaborative virtual model, the relationship between education and virtual work, and virtual goods and services.

Chapter 6

Company-Specific Virtual Worlds	103
<i>Paul Blowers, United States</i>	

This chapter examines how Virtual Worlds are being used in business today. It examines the first wave of companies who have used virtual worlds and presents evidence to its next phase. By defining the spectrum of different uses of Virtual Worlds, this chapter will cover key lessons learned and guidelines, current barriers to adoption, and the business value of using Virtual Worlds for business purposes.

Chapter 7

Virtual Worlds and the Military	127
---------------------------------------	-----

Barbara L. Ciaramitaro, Ferris State University, USA

James Jones, Ferris State University, USA

The use of virtual worlds by the military, intelligence and homeland security agencies is the topic of Chapter 7 by Drs. Ciaramitaro and Jones of the United States. The combined military forces of the United States are over 3 million strong; currently command a defense budget of \$540 billion with an additional allocation of \$306 billion for the Global War on Terror; and has spending power of nearly \$14 billion. In addition to the impact this strong military presence has on our country and the world, these numbers underscore the influence the military has on technology trends, tools, and vendor offerings through its acquisition of various technology software and hardware components. This chapter focuses on the use of virtual worlds by the U.S. military, intelligence, and homeland security sectors for their internal training and education, and recruitment.

Chapter 8

Virtual Education	144
-------------------------	-----

Barbara L. Ciaramitaro, Ferris State University, USA

Virtual education is a multi-billion dollar business and maintains a firm place in the world of E-Commerce. It is a mode used by educational institutions, the military, professional organizations, commercial companies, and others to inform, educate and interact with students, consumers, and participants. This chapter discusses the varying ways that virtual worlds have been incorporated into education. It examines several virtual worlds to see what they offer in terms of content and user experience. The authors also discuss how virtual education compares with traditional forms of teaching and learning. It concludes with an examination of what the future holds for virtual education.

Chapter 9

Virtual Market Economies and the Business of Virtual Worlds.....	160
--	-----

Lee Hwang, There, Inc., USA

This chapter takes a look at the economies of virtual worlds with respect to the business of operating them. Against logic, virtual economies are closer to true market economies than any real world economy. They are also rapidly growing in size and value. With increasing attention from real world governments and tax authorities, virtual economies are stimulating changes in the business of virtual worlds. Virtual world operators have an opportunity to, through their responses, either preserve their investments and their businesses by ensuring a secure role for the market economies they have created, or face serious threats to their business as the real world interferes with virtual fun.

Section 2

Human Factors, Legal and Security Issues of Virtual Worlds

Chapter 10

Legal Issues in the Virtual World and E-Commerce.....	186
---	-----

Daniel S. Hoops, Walsh College, USA

This chapter presents a detailed survey and summary of the laws and regulations affecting virtual worlds. Cyberspace is such an enormous concept that trying to briefly explain the “rules” for E-Commerce or “cyberlaw” is next to impossible. For an E-Commerce, it is important to understand that there are business-to-business transactions and those involving consumers. In addition to requiring a mastery of many legal specialties, E-Commerce presents legal issues in a virtual environment. Many business practices in a cyberspace are untested in the courts. New and innovative methods of competition, as well as the effects of an international playing field change the playfield constantly. The legalities of this great new frontier pose an impressive and intellectually stimulating challenge.

Chapter 11

Achieving Realism in 3D Interactive Systems: Technological Issues.....	205
--	-----

Arman Gukasyan, 3DreamTeam LLC, Russia

Nadezhda Ilyina, Vizerra, Russia

Alexander Lavrov, 3DreamTeam LLC, Russia

Web 2.0 has demonstrated how new technologies can change the structure of the customer-provider relationship. This is evident in the many new business opportunities that have arisen including the growth of 3D environments and virtual worlds. The development of more specialized services and consumer integration creates new marketplaces with new rules of the game. As these new opportunities come to the scene, they will change the face of the world into 3D environments and a multi-agent collaboration. The adoption of virtual worlds depends a great deal on the user experience. The challenges of providing the user with virtual realism is a challenge as many supporting technologies are still in the early development phase. This chapter will discuss several of the issues and tradeoffs involved in developing accurate and realistic virtual worlds.

Chapter 12

Learning Space in Virtual Environments: Understanding the Factors Influencing Training Time.....	216
--	-----

M. Kyritsis, Brunel University, UK

S. R. Gulliver, University of Reading, UK

S. Morar, Consultant, UK

This chapter discusses the environmental and individual user differences that influence the training time required to ensure effective virtual environment spatial knowledge acquisition. Individual factors discussed include: the importance of knowledge and experience; the importance of gender; the importance of aptitude and spatial orientation skills; and the importance of cognitive styles. Environmental factors discussed include: Size, Spatial layout complexity and landmark distribution. Since people are

different, a one-size fits all approach to training time does not seem logical. The impact of this research domain is important to virtual world training in general, however within service and military domains ensuring appropriate spatial training is critical in order to ensure that disorientation does not occur in a life / death scenario

Chapter 13

Opening the Content Pipeline for OpenSim-Based Virtual Worlds 231

Shenlei E. Winkler, Fashion Research Institute, Inc, USA

Although participants in virtual worlds are generally considered by law to be the owner of any Intellectual Property (IP) they create, content creators and owners of OpenSim-based virtual worlds struggle with issues surrounding licensing, content delivery, and usage in these immersive spaces. The Fashion Research Institute (FRI) is specifically exploring these issues in a case study involving the licensing its Shengri La virtual world creations to external users. This case study is the basis of ongoing legal research by FRI's legal steering committee of attorneys from the American Bar Association's Virtual Worlds and Online Gaming committee who are working on a pro bono (volunteer) basis. This chapter presents the result of the ongoing case study. It offers a practitioner's view of issues related to licensing and distribution of content in OpenSim-based virtual worlds.

Chapter 14

Security and Privacy Concerns of Virtual Worlds 244

Greg Gogolin, Ferris State University, USA

This chapter looks at security and privacy concerns of virtual worlds by investigating the use and capabilities of current and emerging technologies such as gaming, blogging, podcasting, virtual meetings, and virtual worlds. Security and privacy concerns will be investigated in the context of exploits and IT-related security risks, access management and confidentiality, reputation and product risk management, resource management, financial considerations and accountability, and safety. Several technologies and personal practices are reviewed, as well as ways to mitigate or eliminate their associated risks. The core principles of information security -confidentiality, integrity, and availability - provide an overall framework for the chapter.

Chapter 15

The Role of Standards for E-Commerce in Virtual Worlds 257

Joerg H. Kloss, Consultant, Germany

Virtual e-commerce can deliver product information that is similar to the information obtained from direct product examination. Both interactivity and customer involvement can enhance the entertainment value of the online shopping experience. However, if virtual e-commerce aim to become a truly global platform for collaboration, then it is vital to keep in mind that consumers' behavior is bound by their cultures. This chapter provides a diagnosis of the six dimensions of the socio-cultural factors that influence the design of virtual e-commerce targeting the Saudi Arabian female market using the founda-

tions of organizational semiotics. An organization – centered analysis and design tools that bridge the gap between the notions of ‘culture’ and ‘IT’

Section 3

The Future of Virtual Worlds and E-Commerce

Chapter 16

Culture-Sensitive Virtual E-Commerce Design with Reference to Female Consumers
in Saudi Arabia..... 267

Khulood Rambo, University of Reading, UK

Kecheng Liu, University of Reading, UK

This chapter discusses the topic of standards for Virtual Worlds with emphasis on their usability as a stable and reliable basis for long-term investments into 3D-E-Commerce. The author explains why standards are important for the success of Virtual Worlds as well as the business in these shared online 3D environments, and what the relevant criteria are to decide for the right technology and/or provider. Although sometimes in the shadow of popular proprietary platforms there are already many different candidates for a Virtual World standard, currently in different states of development. By choosing a 3D platform, E-Commerce providers will decide about their business potential and at the same time strengthen one or another standard in the current technical competition phase. This chapter provides an overview about the current approaches, their advantages and disadvantages as well as the tendencies for the future developments.

Chapter 17

The Future of Virtual Worlds in E-Commerce..... 290

William G. Burns III, Andromeda Media Group, USA

The future of the evolving, collaborative communications structure will be impacted to an ever increasing degree by the merging of e-commerce and virtual worlds. Such media outlets will bring new and innovative methods by which companies can interact with clients and customers, as well as business to business. As these technologies continue to evolve, bringing higher definition, realism, and the power to manipulate potential customer experiences, increasing numbers of people will come to the realization that virtual worlds and similar environments are an essential part of an online communications experience.

Chapter 18

Virtual Worlds: Good Enough Substitute? 309

Charles P. Schultz, Research in Motion, USA

This chapter examines the many aspects of virtual worlds and the solutions they offer in terms of the concept of good enough replacements. A number of solutions currently provided by virtual worlds will be described and evaluated in their present state in comparison to real world equivalents. Dimensions

such as cost, usability and functionality are all subject to an initial analysis, followed by thoughts on what trajectories could be followed for virtual world solutions to evolve further and provide more advantages.

Compilation of References	328
About the Contributors	360
Index.....	366