

## Preface

With the rise of the collaborative Web 2.0 technologies, the face of E-Commerce has evolved from a static presentation of products and services to an interactive participatory relationship with customers. The use of Web 2.0 tools such as blogs, podcasts, discussion forums, Twitter, YouTube, and other technologies have brought businesses closer to their customers. However, these relationships are still asynchronous in nature and cannot parallel the real-time face-to-face communication that the brick and mortar world provides. This constraint is now being lifted through the use of virtual worlds in E-Commerce where customers and visitors are immersed in a world that provides real-time communication and the opportunity to establish relationships with other customers and companies.

E-Commerce is commonly associated with transactions conducted over the Internet. These transactions focus on business conducted between consumers, businesses, government agencies, and other organizations. E-Commerce is also associated with the term E-Business which has a broader focus of transforming business processes through the use of Internet tools and technologies.

Virtual worlds are digital worlds. They are created using computer technologies and often model elements of the real world such as buildings, roads, trees, etc. Participants in virtual worlds use avatars to represent themselves. Avatars are graphic characters that can resemble humans, animals, or mythical creatures. Virtual worlds allow multiple users to share a common space that is represented in visual formats employing a variety of two and three dimensional designs. Immersion is an important aspect of virtual worlds. The more participants feel that they are a part of the digitally created world, the more they will interact and participate in the virtual world activities. E-Commerce providers can use virtual worlds to interact in real-time with their customers and develop personal relationships with each of them. This can result in stronger loyalty to the company which translates into sales and revenue. It is for this reason, that the newest face of E-Commerce is the face of virtual worlds.

My personal experience with virtual worlds has influenced me a great deal. Recently, I attended a security conference. It was an all day event that included speakers from a variety of business, government and industry sectors. The conference activities were located in three buildings: an auditorium for the speaker presentations; an exhibition hall where a number of companies in the security industry presented their products and gave away gifts to visitors for which conferences are so well known; and a lounge where attendees could mingle and talk with speakers and company representatives. In attendance was a monkey typing away on a typewriter, a ballerina, an alligator, a unicorn, and a large number of blue heads. This was a virtual conference held in a virtual world. The participants had created avatars, graphical representations of themselves, to participate in the virtual commerce. Welcome to the newest face of E-Commerce: virtual worlds. As an educator, I have become very familiar with the use of virtual education offered by a growing number of educational institutions and other agencies and organiza-

tions in Second Life®. I can attend lectures, visit exhibits, interact with hands-on displays, and interact with other residents – all virtually. As an amateur online game enthusiast, I am constantly in awe of complexity of virtual worlds created by companies such as Blizzard in their World of Warcraft game. I have become totally immersed in that world for hours at a time. As we will see in this book, this type of immersive experience is forming the basis for a new way of communicating with consumers, students, and military recruits.

The goal of this book is to present current research and thoughts from virtual world experts from around the world. They will present various opinions, judgments, and ideas on how the use of digitally created worlds is changing the face of E-Commerce and extending the use of Internet technologies to create a more immersive experience for customers. This book will present current research on various aspects of the use of virtual worlds including a discussion of the elements of virtual worlds; the evolution of Electronic Commerce (E-Commerce) to Virtual Commerce (V-Commerce); the convergence of online games and virtual worlds; current examples of virtual worlds in use by various businesses, the military, and educational institutions; the economics of virtual worlds: discussions on legal, security and technological issues facing virtual worlds; a review of some human factor issues in virtual worlds; and the future of virtual worlds and E-Commerce. This book has three sections focused on different aspects of virtual worlds.

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

This section begins Chapter 1 by authors David Oyarzun, María del Puy Carretero, Amalia Ortiz and Alex García-Alonso of Spain. They establish the foundation for the remainder of the book by providing a definition of what constitutes a virtual world: history, main features and elements.

Chapter 2 is authored by Dr. Yesha Sivan of Israel in which he sets forth his model for the use of virtual worlds in E-Commerce. He 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.

In Chapter 3, Professor Jones of the United States presents a historical analysis of the evolving nature of E-Commerce to V-Commerce. She presents an overview of E-Commerce focused on its history, trends and future predictions for the field – leading into the development and application of virtual worlds and V-Commerce.

Chapter 4 follows with a discussion by Dr. Tracy Harwood of the United Kingdom of the convergence of online gaming and E-Commerce. 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.

In Chapter 5, Rita King, CEO and Creative Director of Dancing Ink Productions of the United States follows with an examination of some of the most remarkable projects taking place within virtual worlds, 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 focuses on real world applications of virtual worlds by businesses. Paul Blowers of the United States 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 covers key lessons learned and guidelines, current barriers to adoption, and the business value of using Virtual Worlds for business purposes.

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.

In Chapter 8, the multi-billion dollar business of virtual education is examined by Dr. Ciaramitaro. Virtual education 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 and how virtual education compares with traditional forms of teaching and learning. It concludes with an examination of what the future holds for virtual education.

The economics of virtual worlds is the last chapter of Section 1. In Chapter 9, Lee Hwang of the United States 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**

Section 2 begins with a chapter by Professor Dan Hoops who is also a practicing attorney in the United States. Chapter 10 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 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.

In Chapter 11, authors Arman Gukasyan, Nadezhda Ilyina, and Alexander Lavrov of Russia discuss several issues and tradeoffs involved in developing accurate and realistic virtual worlds. Web 2.0 has demonstrated how new technologies can change the structure of the customer-provider relationship. 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 authors maintain that 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.

Chapter 12, authored by M. Kyritsis, S.R. Gulliver, and S. Morar of the United Kingdom 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.

In Chapter 13, Shenlai Winkler of the Fashion Research Institute located in the United States reports on a current case study involving her organization. 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 by Dr. Greg Gogolin closes out Section 2. In this chapter, Dr. Gogolin 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.

In Chapter 15, authors Khulood Ramboo and Kecheng Liu from the United Kingdom discuss the impact of socio-cultural factors on female participation in e-commerce and virtual worlds. 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 foundations 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

Section 3 begins with Chapter 16 which is a discussion on 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. Jorg Kloss of Germany 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.

In Chapter 17 William G. Burns III of the United States discusses the future of V-commerce. He maintains that 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 is the final Chapter of Part 3 and the book. Charles P Schultz of the United States 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.

This book presents a comprehensive discussion of the current state of virtual worlds presented by virtual world experts from around the world. The breadth of topics covered by the authors is remarkable and results in a thorough and thoughtful compendium of the current state of Virtual Worlds and E-Commerce. I hope you enjoy reading it and find the information valuable.

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