

# Preface

## ABSTRACT

*This preface introduces the book Business Web Strategy: Design, Alignment, and Application. The book covers theoretical and conceptual frameworks, concepts, trends, challenges and opportunities, performance measurement, and applications of Web strategies. It comprises 18 chapters organized into three sections: Web strategy design, Web strategy alignment, and Web strategy applications. The book provides insights and support for researchers, managers, and practitioners concerned with the subject of strategic approach to the Internet.*

## INTRODUCTION

The Internet is fully integrated into western societies, and is rapidly growing in developing economies. Via the Web we can search for information, make communicate, establish social relations, buy goods and services, play games, carry out financial transactions, study educational courses, and much more. The Web potential and its exploitation will certainly grow further thanks to the spread of mobile communication devices, a process which has already started.

The Web has changed our way of living, our habits, the way we work, the way we interact with the people we know, and, all in all, the way we deal with the thousands of tasks we are confronted with in our daily lives. We do not need to go personally to a bank any longer, we order bank transfers or check our balances by connecting to our bank's Web site. We just click on the site of a tour operator and carry out the required operations to book our holidays. If we are looking for software that meets our requirements but we do not want to bear the expenses of the related licenses, we just need to find it in one of the many open-source communities that are present on the Web. If we want to tell other Web users about ourselves, about what we do, our hobbies, and maybe even our dreams, what we need to do is to open a blog. Likewise, if we want to establish a social network or expand it, we can simply access one of the many free or pay-services present on the Web, such as Facebook, Myspace, and so forth. We could present an endless list of examples here.

We may even go further and say that people live increasingly more on the Web. To be more precise, actions, relations, and in general certain moments in our lives up to some time ago could have taken place only in the real world, but are now progressively moving onto the Web virtuality. Naturally, this transition from reality to virtuality inevitably modifies the way we interact with each others and with time and costs.

The following statistics provides an up-to-date picture of percentage and growth of Internet users population:

1. The number of Internet users in the world reached 1.4 billion persons in 2007; that is one fifth of the world population (Internetworldstats, 2008).
2. Web access is common nowadays in the most economically developed areas of the world: about two out of three U.S. citizens (71.1%) regularly access the Internet. In Australia and in Europe the percentage of Internet users is 57.1% and 43.4%, respectively. In Europe, however, there are some geographical areas where Internet penetration is considerably higher than the North American average; this is true for Norway (88%), the Netherlands (87.8%), and Iceland (85.4%) (Internet-worldstats, 2008).
3. The Internet is growing exponentially. The number of Internet users increased globally by 265.6% during the period 2000-2007 (Internetworldstats, 2008).
4. Interestingly, the growth rate in the number of Internet users in the developing countries during 2000-2007 is higher than that in developed countries (Internetworldstats, 2008). The increase in the number of Internet users in North America, Australia, and Europe in the period 2000-2007 was equal to 120.2%, 151.6%, and 231.2%, respectively. The growth rates of Internet users in Middle East (920.2%), Africa (882.7%), Latin America (598.5%), and Asia (346.8%) are astoundingly high growth rates.
5. The global number of Web sites was approximately 550 million in January 2008, witnessing an increase by 25% as against the same period in 2007 and by roughly 648% in comparison with January 2000 (Internet System Consortium, 2008).
6. A survey carried out by Burst Media (2008) finds 67.7% of the respondents (13,000 Web users) emphasize that their daily routine would be disrupted if Internet access was not available for one week. Furthermore, 42.9% of respondents stress that the daily disruption would be significant.
7. The same survey finds that the majority of Internet users 45 years and older believe online content is focused on younger age segments (Burst Media, 2008). The survey finds that younger respondents are interested more on entertainment information (44.7%) in comparison to only 34.1% for shopping and product information. While older respondents indicate that they regularly seek local/national news (55.9%) followed by shopping/product information (44.0%).
8. A survey carried out by Nielsen (2008a) in the U.S. shows that 146.6 million users accessed Internet during March 2008, 51.35% of them women. The amount of time spent online nearly reaches 71 hours/month for men and 65 hours/month for women.
9. Nielsen (2008b) reports an estimated 8 billion searches were conducted in the U.S. during April 2008. An estimated of 62% of the search queries were conducted at Google Search.
10. The Internet in the UK is mainly used to send e-mails (91%), access general information (82%), purchase (72%), manage bank accounts (57%), download music, films, and videos (46%), play games (36%), chat or talk (40%), and trade online (16%) (Ofcom, 2005).

Virtually, all organizations in developed countries create Web pages to advertise their product/services. Literature indicates that firms rely on Web access for variety of reasons, including increasing efficiency, enhancing effectiveness, cost reduction, sharing of managerial know-how, time-to-market reduction, customer satisfaction, improved corporate image and branding policies, and increasing market share (Barua, Whinston, & Yin, 2000; Bovet & Martha, 2000; Cox & Koelzer, 2004; Evans & Wurster, 2000; Porter, 2001; Ries & Ries, 2002; Wilson, 2002).

Empirical studies indicate high satisfaction of organizations from the investment on Web technologies. A worldwide survey indicates that more than half surveyed organizations (2847 respondents) declare to be satisfied with the outcome of their investments on Web technologies over the past five years; almost three-quarters of the interviewed companies declare to be wanting to continue or increase the invest-

ments in Web technologies in the coming years (McKinsey, 2007). A recent survey (Awareness, 2008) shows that 96% of the surveyed organizations are happy with their investment on Web technologies. The survey concludes that the Web can be used to improve communication and collaboration (91% of surveyed organizations), selection and allocation of professional resources (81%), sharing information (78%), and increase brand awareness and customer retention (64%).

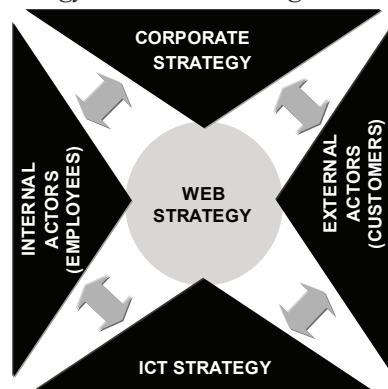
Notwithstanding the benefits of investment on Web technologies for organizations' well-being, studies highlight a concern among firms that the Web may create additional managerial problems and may not actually be the panacea for their existing problems and when an organization has managerial problems it will probably translate the same problems to the virtual space. Outcomes of some empirical studies reflect detrimental and adverse outcomes:

1. An empirical study conducted by Clearswift (2007) reveals that 23% of 700 directors of human resources involved in the study are not familiar with the Web technologies.
2. According to the research carried out by Awareness (2008), 53% of the respondent organizations state that they are not aware of how the social media tools of Web technologies could be useful to their company.
3. The empirical study carried by Clearswift (2007) shows that 72% of organization do not allow accessing social networking sites during business hours for a variety of reasons, including concerns about lowered productivity (85%), security and leak of confidential information (58%), sites content (39%), and the ownership of intellectual property placed on those sites (31%).

## AIM OF THE BOOK AND TARGET AUDIENCE

There has been evidence which highlights how investments in technology have often resulted in expensive failures and severe losses because: projects started and never finished, results did not meet expectations, there was incoherence between technology and company strategy or structure; and of the inability to evaluate results, and, therefore, it was difficult to know if the initiative had been successful or not (Fattah, 2002; Minard, 2001, 2002; Iacovou & Dexter, 2005; Kappelman, McKeeman, & Zhang, 2006). These studies point to the lack of a sound Web strategy and a gap between the firm Web strategy and other strategies, including corporate strategy and ICT strategy (Figure 1).

*Figure 1. The interaction of Web strategy with other strategies and actors*



Like any other project entailing technology and changes in the way people work within an organization, the skills of employees and their competence are critical elements in the planning of a Web strategy (Internal actors—Figure 1). In addition, the positive interaction or satisfaction of customers (external actors—Figure 1) with the organization's Web forms one of the major challenges for the organization willing to develop a successful Web strategy.

This book addresses the gap in business Web strategy, considering positive interaction of external actors as well as skills and competence of internal actors. It aims to present cutting-edge research on the theory, applications, and challenges facing the design, development, and implementation of the Web strategy.

This book is mainly oriented to people who, for different reasons, recognize that the Web is a powerful tool for supporting business strategy. Managers such as CEOs, general directors, plan and control responsible, and IT responsible will be considered as privileged actors.

In general, the natural users of this book will be not only the ICT vendors, but also those managers, consultants, and trainers who must offer innovative and effective answers in this new business field.

The Web strategy topic, both in industry and in academies, has grown rapidly over the past decade, and continues to grow. The book provides insights and support for the following groups of people:

- Professionals and researchers in the field of information system in general and in Web strategy in particular.
- Managers, practitioners, and consultants called to work out the most efficient and effective solutions for Web strategy, design, and implementation.

## BOOK STRUCTURE

The book comprises 18 chapters organized into three sections: design, alignment, and applications. The following is a brief description of each section and the chapters included in them.

### Section I. Design Web Strategy

The first section of this book features six chapters that deal with customer value and various trends, patterns, and methodologies affecting the design of Web strategy. The first chapter, *“Using Patterns for Engineering High-Quality E-Commerce Applications”* is authored by Pankaj Kamthan and Hsueh-Ieng Pai, who present a methodology for deploying patterns for improving the quality of e-commerce applications and identifying relevant quality attributes. The authors analyse the role of development processes and the challenges facing optimal use of patterns. They explore the use of patterns during macro and microarchitecture design of business-to-consumer (B2C) e-commerce applications.

Web technology has a strong impact on corporate processes and ultimately, requires new ICT skills and new training paths. *“Informing Industry via Academic Research in ICT Skill and Capability Development”* by Krassie Petrova and B. Dawn deal with these two aspects. This chapter designs a framework representing the dynamics of the ICT supply and demand for graduates with relevant skills and capabilities. The framework facilitates the dialogue between industry and academia, aiming to identify issues raised from the lack of alignment between the two and to suggest a pathway for using academic research results to address industry requirements. The framework is supported by the findings of two relevant case studies.

Internet does not only change processes, but also corporates logic and attitude toward ICT. Within the same scope of Chapter II, Jiri Vorisek and George Feuerlicht, in Chapter III, “*The Impact of New Trends in the Delivery and Utilization of Enterprise ICT on Supplier and User Organizations*” have identified a number of important trends within the framework of “software as a service (SaaS)” model. These trends lead to more effective ICT management of ICT. The authors emphasize that these trends will have dramatic impact on both the suppliers and users of ICT, and will necessitate the reevaluation of approaches to ICT education.

The logic for Web usage has been changing quickly over the past years. Javier Soriano, David Lizcano, Marcos Reyes, Fernando Alonso, and Genoveva López, in their chapter, entitled, “*Enterprise 2.0: Collaboration and Knowledge Emergence as a Business Web Strategy Enabler*,” explore the Internet’s present and future potential in relation to information sharing, knowledge management, innovation management, and the automation of cross-organizational business transactions. They point out how a business Web strategy protects investments in technology that would otherwise have resulted in expensive failures and severe losses. The chapter guides entrepreneurs, managers, and IT leaders through the adoption of the latest Internet technologies, such as Web 2.0, Enterprise 2.0, and global service oriented architecture with a view of setting up an effective business Web strategy.

The fifth chapter is this section, entitled, “*Customer Relationship Management (CRM): An In-Depth Analysis*” by Michael Raisinghani, Abdu Albur, Sue Leferink, Thomas Lyle, and Stephen Proctor, discusses customer relationship management (CRM) as a customer-focused business strategy that enhances business processes to proactively manage profitable and long-term customer relationships. The authors argue that understanding the underlying assumptions and theoretical constructs of CRM is an important factor for designing effective Web strategy.

Luigi Geppert in Chapter VI, “*Different Web Strategies for Different E-Marketplaces*,” presents two possible models for electronic marketplaces. Both models show a particular use of Web-based information technology representing meaningful cases for application of well-defined Web strategies.

## Section II. Aligning Web Strategy to Corporate Strategy

The second section of this book contains six chapters focusing on the alignment of Web strategy with other business strategies. The chapters discuss the Web strategy alignment from various perspectives, including public presence on the Web (Memmola, Tzannis, and Frigerio), analytical perspective (Yen, Hu, Zuo, Chen and Yang), integrating technologies (Schwickert and Ostheimer), or cost measurement and performance management (Memmola, Palumbo, and Rossini).

Many organizations in the past 5 years have conducted surveys designed to get a profile of the implementation of Web services in various subject areas. In the first chapter of this section, “*Trends of Web Services Adoption: A Synthesis*”, Vincent C. Yen develops analyses of the results of these surveys. The chapter shows that all sources of surveys indicate that Web services are being adopted almost in all medium and large organizations because of realized benefits, and is to become a viable component of the information systems infrastructure. Some of the current issues in Web services adoption and implementation are standards, training and security.

Radio frequency identification (RFID) has recently begun to receive increased interest from practitioners and academics. This type of technology has been widely used in healthcare organizations for different purposes. In Chapter VIII, entitled, “*Web and RFID Technology: New Frontiers in Costing and Process Management for Rehabilitation Medicine*,” Massimo Memmola, Giovanna Palumbo, and Mauro Rossini present the results of a study in which they integrate RFID with Web technology for a test application aimed at defining some specific data on care needs of a disabled person, costs of the



main activities performed during this person's rehabilitation process, and level of performance that could be reached in order to improve the "disability management" process, from a clinical as well as a managerial perspective.

Mobile handheld devices such as smart cellular phones and personal digital assistants (PDAs) are used to browse the mobile Internet. However, the small screens of handheld devices and the slow mobile data transmission make the mobile Web browsing awkward. In Chapter X, entitled "*Adaptive Mobile Web Browsing Using Web Mining Technologies*," Wen-Chen Hu, Yanjun Zuo, Lei Chen, and Chyuan-Huei Thomas Yang present a research that applies Web usage mining technologies to handheld devices. Web usage mining is the application of data mining techniques to the usage logs of large Web data repositories in order to produce results that can be applied to many practical subjects, such as improving Web sites/pages. A Web usage mining system must be able to perform five major functions: (a) usage data gathering; (b) data preparation; (c) navigation pattern discovery; (d) pattern analysis and visualization; and (e) pattern applications. This approach improves the readability and download speed of mobile Web pages.

Axel Schwickert and Bernard Ostheimer, in Chapter XI, "*Integration of Public University Web Sites and Learning Management Systems*," address the Web's potentials supporting learning pathways at universities. The World Wide Web is used as an instrument of knowledge transfer and knowledge examination. The chapter addresses the utilization of Web content management systems (WCMS) for learning management systems (LMS) to transfer and the examination of knowledge.

Chiara Frigerio, in her chapter named "*Innovating through the Web: The Banking Industry Case*," deals with the Web's strategic role in the banking industry. The chapter provides statistics indicating significant increases in the utilization of Web technologies during 2001-2007. The chapter describes in details the role of Internet in facilitating services and developing new products for the banking industry.

### Section III. Applications of Web Strategy

The third section of the book presents six chapters focusing in the Web strategy applications. It contains results from several case studies and empirical research.

In Chapter XIII, entitled, "*An Action Research Case Study of the Facilitators and Inhibitors of E-Commerce Adoption*," Orla Kirwan and Kieran Conboy study the adoption of e-commerce by small and medium size enterprises (SMEs). The authors employ action research methodology and use an established Irish retail business as a case study. The authors demonstrate how the research was undertaken, and discuss the justification, benefits, and limitations of using action research. The research concludes that the adoption of e-commerce within the SME sector tends to be slow and fragmented. It also supports the evidence that an SME is more likely to adopt e-commerce when the SME owner has a positive attitude toward IT.

Chapter XIV, "*Acceptance of the Mobile Internet as Distribution Channel for Paid Content in Germany*," by Svenja Hagenhoff, Christian Kaspar, Lutz Seidenfaden, and Björn Ortelbach presents a survey based on 7,178 valid responses which analyses the mobile content usage in Germany. The authors found that respondents who are familiar with mobile radio and handset technology and read specialized printed media on a regular basis show the highest acceptance of mobile paid contents. The mobile Internet is perceived as a chance for the media industry to generate additional revenues from paid contents. The authors conclude that media companies planning to establish mobile services for content distribution are facing the problem that acceptance of mobile services has not yet been researched thoroughly.

Information quality is critical for communication portals because there are myriads of information types, including textual, audio, video, and other complex information types. Kevin K.W. Ho, in his

chapter entitled, “*Information Quality Satisfaction of Communication Portals: A Study of Central Cyber Government Office (CCGO) of the Hong Kong Government*,” presents a study that examines whether information generated from an in-house developed communication portal of the Hong Kong government would have higher quality than those portals developed by individual government departments using commercial packages. He conducted a survey-based study to understand how users evaluate the information quality of these communication portals. The case-study presented in the chapter is interesting because (1) the Hong Kong government has invested millions of US dollars in its implementation and (2) the number of potential users is huge (over 140,000 users).

Performance assessments of Web projects and IT investments in general is one of the most debated subjects in literature. Maria Alice Frontini and Fernando Jose Barbin, Laurindo present an interesting methodological approach to the subject, based on the “real options” method. The chapter, entitled “*The Evaluation of IT Investments through Real Options*,” underlines how chief information officers (CIOs) face prejudice from top management, and who are concerned with the real benefits that IT can bring to business. This chapter concludes that the technological uncertainties make it very difficult to estimate the value that can be extracted from the usage of new IT solutions.

Silvia Novaes Zilber, in her chapter, “*Strategic Use of the Internet and Organizational Structure for E-Business: “Celta” Case at GM Brazil*,” presents an interesting study about the introduction of e-business activities by General Motors Brazil, specifically in connection with the launch of the Celta car, which is an entry-level car designed to be sold on the Internet. The organizational structure implemented for the launching and sales of the Celta car warranted the integration between employees on both business and information technology (IT) sides, in the context of GM Brazil’s strategic objective of growing the market share for lower-price cars.

The last chapter of the book, Chapter XVIII, is authored by G. Castellano, A. M. Fanelli, and M. A. Torsello and is entitled “*On the Use of Soft Computing Techniques for Web Personalization*”. The authors discuss Web-based applications and emphasize that these applications become increasingly necessary, because of the growing variety and quantity of information available on the Web. In their chapter, the authors emphasise the suitability of hybrid schemes combining different soft computing (SC) techniques for the development of effective Web personalization systems. In particular, the authors present a neuro-fuzzy approach for Web personalization that combines the fuzzy and the neural paradigms to derive knowledge from Web usage data and represent it in the comprehensible form of fuzzy rules.

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