Preface

An organization is, according to the Cambridge Dictionary, a company or other group of people that works together for a particular purpose. The definition of the Business Dictionary is even more precise. An organization is a social unit of people, systematically structured and managed to meet a need or to pursue collective goals on a continuing basis. In this scenario, from mid-eighties there is little disagreement about the strategic importance of information technology (IT) for organizations (Bakos & Treacy, 1986) and now the importance of IT for researchers, managers, and policy makers is unquestionable (Melville, Kraemer, & Gurbaxani, 2004). Moreover, changes in IT services and their delivery have shifted the need for non-IT firms’ IT skills and capabilities to emphasize a business focus (Simon, Kaiser, Beath, Goles, & Gallagher, 2007). Finally, since the new operational priorities require new technology capabilities, the linkage between these operational shifts and the changes in skills and capabilities must be discussed (Gerth & Rothman, 2007), no matter if there’s a difference on IT critical skills of clients and IT service providers (Hawk et al., 2012).

IT is indeed a base of development for countries and a benchmark practice for leading and successful organizations (Tohidi, 2011) and IT is in the eye of the hurricane of the development of the society (Colomo-Palacios, Casado-Lumbreras, Soto-Acosta, & García-Crespo, 2012). Not in vain, organizations have been investing between 2% and 4% of their annual organizational budgets in IT in recent years (Ragowsky, Licker, & Gefen, 2012). It is widely known that the successful exploitation of IT within the business is dependent upon the availability of IT professionals to design and integrate IT infrastructure and applications (Agarwal & Ferratt, 2002). In words of (Colomo-Palacios, Casado-Lumbreras, Misra, & Soto-Acosta, 2012), human resources have been recognized as one of the most decisive and scarce resources for IT industry. According to (Kaplan, Khan, & Roberts, 2012), the right technology talent can be hard to find.

Literature reported that IT crisis affects the company as a whole (Sofuoglu & Basoglu, 2008) in a deep way. In this scenario, managers should pay attention to IT performers, their needs, aims and views. In other words, managers have turned their attention to the human factor, to gain and retain strategic advantage inside a competitive market (Preve, 2012).

However, due to the constant changes in technology reported vastly in the literature (Benamati & Lederer, 2008), the obsolescence of skills and knowledge is directly related to advances in technology. Paradigm shifts from rapidly changing technological and business environments dictate that IT professionals adjust their skills and capabilities to effectively support their organization’s mission (Zwieg et al., 2006). Certainly, IT professionals, that are responsible to offer the use of this technology to others are themselves concerned by fast changes and necessarily need to consider ways and new strategies to improve performance and prevent possible risks and must provide correct and applicable solutions for
planners and managers of organizations, for decision-making and policy-making (Tohidi, 2011). Linked or not with career abandonment (Colomo-Palacios, Casado-Lumbreras, Misra, et al., 2012), turnover or turnaway intentions (Joseph, Tan, & Ang, 2011), retention (Coombs, 2009) or work conflict (Dinger, Thatcher, & Stepina, 2010), the need of constant professional update is inherent for IT professionals around the world. And this is one of the sources to job stress (Dhar & Dhar, 2010) for IT workers.

Managing IT human resources presents a challenging task for executives: the introduction of new ITs alters the parameters of the staffing decisions constantly (Choi, Nazareth, & Jain, 2012). Dramatic changes in context have occurred over the last 25 years for IT practitioners, with ICTs becoming pervasive in many areas of human activity and in all countries of the world (Walsham, 2012). Deloitte’s annual Technology Trends report examines technology put to practical business use. In 2012, Deloitte presents a set of technologies that are here to stay: Social Business, Gamification, Enterprise Mobility Unleashed, User Empowerment, Hyper-hybrid Cloud, Big Data Goes to Work, Geospatial Visualization, Digital Identities, Measured Innovation and Outside-in Architecture (Deloitte, 2012). IT environment is full of changes that IT professionals must face guided by strong managers pertaining flexible organizations. But apart from these changes, (Walsham, 2012) suggest to define an agenda that emphasizes the need for a focus on ethical goals along with a multidisciplinary approach.

In this highly complex scenario, efforts like the International Journal of Human Capital and Information Technology Professionals (IJHCITP) make sense. The objective of this journal is to offer an outlook on the state of the IT profession from the perspective of human capital. IJHCITP includes the different disciplines within the IT field (Software Engineering, Information Systems, Computer Science, Computer Engineering…), focusing on them from the outlook of professionalism and covering the themes applying a multidisciplinary perspective, which includes visions from fields such as human resource management, sociology, psychology and management.

This book is concerned with the management of IT Professionals working in modern organizations. All these visions are reflected on the first volume of IJHCITP. This manuscript, as a result of a year of works published in IJHCITP, presents three different sections and twenty-two chapters.

**ORGANIZATION**

The book is structured in three sections, with the following major themes:

1. IT Professionals Human Resource Management
2. IT Professionals Education and Learning
3. IT Professionals in Projects and Organizations

The next paragraphs provide a short introduction into each chapter.

**SECTION 1**

Section 1, *IT Professionals Human Resource Management*, includes a set of six chapters. Resources in an organization fall into three categories (Barney, 1991): physical capital resources, human capital resources, and organizational capital resources. Human capital resources include characteristics such as
the experience, judgment, and intelligence of the individual managers and workers in the firm. A definition of human resources can be found in the work of (Wright, McMahan, & McWilliams, 1994) as the pool of human capital under the firm’s control in a direct employment relationship. Recently and after many disperse evidences collected in the literature, the work of (Buller & McEvoy, 2012) demonstrates that human resource management practices can effectively align organizational, group and individual factors with the organization’s strategy.

Although there is some criticism around the importance of strategic human resources management in highly skilled professionals (Chasserio & Legault, 2009), this is still a crucial function in the firm that deserves study.

The first chapter in this section and in the book is entitled “A Dynamic Approach to Introduce Competency Frameworks: Application to the IT & Systems Management Domain” and written by Alfonso Urquiza Echavarren from Universidad Francisco de Vitoria, Spain. The overall main objective associated to the work of Dr. Urquiza is to provide an innovative approach to define Competency Frameworks that could efficiently be used by large size type of organizations willing to transform employee’s management processes using Competency based models. As a result of that, the chapter proposes a scope extended methodology already validated by experts in functional HR management and IT Systems professionals to introduce competency frameworks in IT organizations.

Chapter 2 is entitled “Project Managers’ Competence Identification” and was written by Heli Aramo-Immonen (Tampere University of Technology, Finland), Andrea Bikfalvi (University of Girona, Spain), Núria Mancebo (University of Girona, Spain) and Hannu Vanharanta (Tampere University of Technology, Finland). This work, that is also focused on Competences, cornerstone of the modern human resource management practices, presents a clear aim: the main purpose of this study is to investigate and show the results of a self-assessment of students acting as project managers in academic settings compared to experienced project managers in industry settings. The system introduced supports decision making by measuring and capturing the actual drivers designed specifically for the role of project manager and presents important concerns for students, practitioners and organizations alike.

The work of Jing (“Jim”) Quan (Salisbury University, USA), Ronald Dattero (Southwest Missouri State University, USA), Stuart D. Galup (Florida Atlantic University, USA) and Kewal Dhariwal (Athabasca University, Canada) entitled “The Determinants of Information Technology Wages” is presented in Chapter 3. This study extends the existing literature of the determinants of IT wages in the following ways. First, the authors built the questionnaire based on extensive literature review and collected the data first hand. Second, authors consider the specific type of education in addition to education level. Third, managerial positions are considered in the model. Finally, binomial logistic regression analysis is used to estimate the odds ratios of making low wages (<$75,000) when compared to high wages (>$75,000) for the key variables in the study. Results indicate that the most important factors associated with high salaries are managerial positions, IT experience, education, and organization size.

Chapter 4 by R. Saraswathy (National Institute of Technology, India), N. Thamaraiselvan (National Institute of Technology, India), B. Senthilarasu (National Institute of Technology, India) and M. Sivagnanarasu (National Institute of Technology, India), entitled “Facades of Attractive Employer in Indian IT Industry: Existing Employee Perspective” examines the elements of employer attractiveness in IT industry from the perspective of current employees and determines the most attractive employer in the Indian IT industry. Given that attracting knowledge workers is recognized as a critical success factor by organizations, employer attractiveness is a building block of employer brand and this is one
of the solutions to tackle the ever present predicament of employable top talent. This research gained an understanding of what knowledge workers view as the most important attributes of their best employer.

Chapter 5 is titled “Work Practices to Curb Attrition in the Indian Hi-Tech Software Development Industry: A Structurational Analysis” and authored by Anuradha Mathrani (Massey University, New Zealand) and Sanjay Mathrani (Massey University, New Zealand). This chapter gives new insights on emerging practices for retaining and motivating software workers in India. Findings reveal that software practitioners are not passive, but have the power to bring about transformation in organizational practices. New organizational routines for retaining professionals have been implemented to motivate professionals and capture contextual knowledge into project repositories. This assists to counter attrition, and at the same time reduce dependency of IT firms on individuals. The study illustrates empirically that the dualism between IT professionals and organizational work structures enable each other in knowledge industries.

The last paper in Section 1 is authored by Nelson Gama (Instituto Superior Técnico & Marinha Portuguesa, Portugal), Raúl Nunes da Silva (Instituto Superior Técnico, Portugal) and Miguel Mira da Silva (Instituto Superior Técnico, Portugal). In this work, entitled “Using People-CMM for Diminishing Resistance to ITIL,” authors suggest to combine two of the most important initiatives in IT scenario. On the one hand, Information Technology Infrastructure Library (ITIL) that plays a crucial role in the alignment of IT services and business needs. On the other hand, People-CMM, a maturity model aimed to improve the management and development of the workers within an organization. The aim of this work is to demonstrate that People-CMM has impact on achieving a greater ITIL maturity as well.

SECTION 2

The second section is devoted to Professionals Education and Learning and contains a set of six papers. Professional education can be defined as the learning process that provides the specialized knowledge needed to pursue a particular craft, trade, vocation, or profession. In recent years, there’s a trend to bridge the gap between industry needs and academic curricula (Holt, Mackay, & Smith, 2003) and it is so in many disciplines including information systems (J. H. Benamati, Ozdemir, & Smith, 2010; Foltz & Renwick, 2011; Khoo, 2012), software engineering (Mead, 2009; Mead et al., 2010; Mishra & Mishra, 2011) or computer science (Sahami, Guzdial, McGettrick, & Roach, 2011; Zyda, 2009, 2009), citing just some of the most recent and relevant efforts. In this book and section, a set of innovative works tackle the main issues of professional education and learning for IT professionals.

The first chapter in Section 2 is entitled “Learning in Networks of SMEs: A Case Study in the ICT Industry” and authored by Valentina Morandi (University of Brescia, Italy) and Francesca Sgobbi (University of Brescia, Italy). This paper focuses on the participations of SMEs in business networks and applies a framework to analyze to what extent the participation of such organizations in voluntary networks implies benefits for SMEs. Results show that, among other effects, SMEs in voluntary networks are able to gain economies of scale, increase their productive capacity and integrate their technologies to win contracts from the local public administrations.

Chapter 8 is the second paper in Section 2. This work is authored by Elena Ruiz Larrocha (Spanish University for Distance Education, Spain), Jesús M. Minguet (Spanish University for Distance Education, Spain), Gabriel Díaz (Spanish University for Distance Education, Spain), Manuel Castro (Spanish University for Distance Education, Spain), Alfonso Vara (Spanish University for Distance Education, Spain), Sergio Martín (Spanish University for Distance Education, Spain) and Elio San Cristobal (Spanish
University for Distance Education, Spain). In this chapter, titled “Proposals for Postgraduate Students to Reinforce Information Security Management inside ITIL,” the authors describe the learning approach adopted at Spanish University for Distance Education to tackle ITIL contents in postgraduate courses.

The third chapter in Section 2 is titled “A Multidisciplinary Problem Based Learning Experience for Telecommunications Students” and is authored by Carlos Figuera (Rey Juan Carlos University, Spain), Eduardo Morgado (Rey Juan Carlos University, Spain), David Gutiérrez-Pérez (Rey Juan Carlos University, Spain), Felipe Alonso-Atienza (Rey Juan Carlos University, Spain), Eduardo del Arco-Fernández-Cano (Rey Juan Carlos University, Spain), Antonio J. Caamaño (Rey Juan Carlos University, Spain), Javier Ramos-López (Rey Juan Carlos University, Spain), Julio Ramiro-Bargueño (Rey Juan Carlos University, Spain) and Jesús Requena-Carrión (Rey Juan Carlos University, Spain). The work describes an initiative to implement Problem Based Learning in Telecommunications Engineering degree; results show that students improve their autonomous learning capacities along with their specific knowledge about the topic.

“IT Methods and Techniques Applied to Educational Quality Enhancement” is the tenth paper in the book. This work, authored by Kerstin V. Siakas (Alexander Technological Educational Institute of Thessaloniki, Greece), Rita Gevorgyan (State Engineering University of Armenia, Armenia) and Elli Georgiadou (Middlesex University, UK), reports the results from a multidisciplinary approach applying Information Technology methods and techniques (Total Quality Management, Goal Question Metric and Balanced ScoreCard) to Educational Management which was conducted at Cybernetics Faculty of the Engineering University of Armenia. Authors explore the importance of the European Bologna Process in countries in the border of Europe and how an effective implementation of a Quality Assurance action plan, based on the standards of the European Network of Quality Assurance (ENQA), can help reduce weakness and enhance the quality of education.

The fifth paper in Section 2 is entitled “Problem-Focused Higher Education for Shaping the Knowledge Society” and is authored by Juri Valtanen (University of Tampere, Finland), Eleni Berki (University of Tampere, Finland), Elli Georgiadou (Middlesex University, UK), Margaret Ross (Southampton Solent University, UK) and Geoff Staples (British Computer Society, UK). In this work, authors reflect on a collection of social, work and educational needs and constraints. They adopt a compare-and-contrast approach outlining challenging issues of Work-Based Learning, Problem-Based Learning and Problem-Focused Education for higher education.

The last paper in Section 2 is authored by Margaret Ross (Southampton Solent University, UK), Geoff Staples (Southampton Solent University, UK) and Mark Udall (Southampton Solent University, UK) and is entitled “Engaging the Students in Activity Based Learning for Future Employability.” This chapter describes and evaluates the development of employability within the curriculum of the School of Computing and Communications

SECTION 3

Given that IT work is normally a project oriented task, Section 3 is devoted to IT Professionals in Projects and Organizations.

The first chapter in this Section is the thirteenth of the book. It is entitled “Trust as an Aspect of Organisational Culture: Its Effects on Knowledge Sharing in Virtual Communities” and is authored by Abel Usoro (University of the West of Scotland, UK) and Imran U. Khan (University of the West of
Scotland, UK). This chapter is one of the efforts at addressing the ambiguity on the role of trust. Thus, authors examine trust from the point of view of being a subset of organizational culture, and investigate how it affects knowledge sharing in virtual communities. The main contribution of the chapter is a conceptual framework aimed to express the relationship between trust components and knowledge sharing in virtual communities.

The aim of “Leading Techies: Assessing Project Leadership Styles Most Significantly Related to Software Developer Job Satisfaction” by Steven Westlund (Washington University in Saint Louis, USA) is to assess leadership styles that are significantly correlated with software developer job satisfaction. Based on the results of this study, this author recommends that IT professionals adopt a proactive approach to project leadership that includes a contingent reward style. In the manager side, the researcher suggests that managers can facilitate employees’ growth needs, in part, through progressively challenging assignments and recognition of achievement. Firms can better leverage their IT talent by hiring and developing managers who take a proactive approach to project leadership.

The third chapter in Section 3 is entitled “A Vertical Approach to Knowledge Management: Codification and Personalization in Software Processes.” In this work, authors Karsten Jahn (Aalborg University, Denmark) and Peter Axel Nielsen (Aalborg University, Denmark) explore the distinction between the codified and personalized Knowledge management strategies for Software Process Improvement and in particular how knowledge tools and systems can support the strategies. The main contribution of this work is a layered strategy to combine oppositional strategies on different organizational levels to a combined Knowledge Management strategy. The novelty in this approach is the distinction of different organizational levels in a company and a different knowledge management strategy for each. Compared to traditional solutions, this solution provides more flexibility, not only in the way the knowledge management strategies are applied, but also for the company’s Knowledge Management as a whole.

Chapter 16 is entitled “The I5P Visualisation Framework for Performance Estimation through the Alignment of Process Maturity and Knowledge Sharing” and is authored by Elli Georgiadou (Middlesex University, UK), Kerstin Siakas (Alexander Technological Educational Institution of Thessaloniki, Greece) and Bo Balstrup (Center for Software Innovation, Denmark). This chapter, which is also focused on knowledge management and software process maturity, introduces the I5P Framework which is a visual metaphor of the alignment of the process maturity and knowledge sharing within organisations. This framework links knowledge sharing to process maturity providing a structure that aims to encapsulate tacit accumulated knowledge in the organisation by preserving it for future needs.

“Success Factors for the Management of Global Virtual Teams for Software Development” by Javier García Guzmán (Carlos III University of Madrid, Spain), Javier Saldaña Ramos (Carlos III University of Madrid, Spain), Antonio Amescua Seco (Carlos III University of Madrid, Spain) and Ana Sanz Esteban (Carlos III University of Madrid, Spain) deals with Global Software Development, one of the main trends in software industry. Authors describe several of the most important problems related this approach and present a set of key factors to contribute to the correct and effective management of global virtual teams for software development and underlying solutions are addressed to reduce cultural and time barrier. These success factors consider different perspectives as technology, human factors and process.

Chapter 18 is entitled “Knowledge Base Development in Virtual Enterprise Network as Support for Workplace Risk Assessment” and is authored by George Dragoi (Politehnica University of Bucharest, Romania), Anca Draghici (Politehnica University of Timisoara, Romania), Sebastian Marius Rosu (Special Telecommunication Service, Romania), Alexandru Radovici (Politehnica University of Bucharest, Romania) and Costel Emil Cotet (Politehnica University of Bucharest, Romania). This work presents
PREMINV e-platform, a framework intended to unify existing standards for supply chain management and to provide support in various decision making processes in manufacturing supply networks. This platform supports virtual business processes development, based on the main internal and external SMEs knowledge resources used during the product development process and business strategies elaboration.

“The Effect of Music Listening, Personality, and Prior Knowledge on Mood and Work Performance of Systems Analysts” is the seventh paper in Section 3. This work, authored by Teresa Lesiuk (University of Miami, USA), Peter Polak (Vrije Universiteit, Netherlands), Joel Stutz (University of Miami, USA) and Margot Hummer (University of Miami, USA), investigates the effects of music listening on mood and work performance of systems analysts. Authors report that, given that these IT professionals are in tune with feeling stressed, music listening can change their mental state and as a result of this, can provide the individual with a much needed change and renewed perspective on work demands.

Chapter 20 by Colin Pattinson (Leeds Metropolitan University, UK), Denise Oram (Glyndwr University, UK) and Margaret Ross (Southampton Solent University, UK) is entitled “Sustainability and Social Responsibility in Raising Awareness of Green Issues through Developing Tertiary Academic Provision: A Case Study.” The chapter describes the experiences and thinking behind the development of awareness of sustainability in an MSc and offers some suggestions for further development to secure sustainability within the IT education sphere.

“A Framework for the Quality Evaluation of MDWE Methodologies and Information Technology Infrastructures” by Francisco José Domínguez-Mayo (University of Seville, Spain), María José Escalona (University of Seville, Spain), Manuel Mejías (University of Seville, Spain), Isabel Ramos (University of Seville, Spain) and Luis Fernández (University of Alcalá, Spain) deals with Model-Driven Web Engineering (MDWE). Given that there are many methodologies in this field; authors present QuEF (Quality Evaluation Framework), an effort oriented towards evaluating, through objectives measures, the quality of information technology infrastructure, mainly in MDWE methodology environments.

The final chapter in the book, Chapter 22 is the tenth in Section 3. “Success Factors and Motivators in SPI,” by Andreas Munk-Madsen (Metodica, Denmark) and Peter Axel Nielsen (Aalborg University, Denmark) is devoted to software process improvement (SPI). Authors conducted a survey in Denmark and found that, in general, the effects of SPI are very limited and the diffusion of maturity assessments is particularly low. Apart from that, authors found that internal motivators are more frequent than external motivators and that effort does not match intention, in other words, the leadership commitment to invest in SPI and manage effort is quite low.

CONCLUSION

The objective of this book has been to draw together on one place a whole year of articles published in IJHCITP. With this great number of chapters and different viewpoints on the latest developments in the field, editor hopes that this compilation helps readers to follow the newest trends in the management of IT Professionals.

The three sections of this book delve into some of the most prevalent and pervasive concerns that Information Technology professionals are facing. The book includes chapters from around the world. Each contribution provides an interesting and deep study of one of the main issues on the IT professionals’ practices and scenarios. Enjoy the reading!

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REFERENCES


**ADDITIONAL READING**


Wang, J. (2012). *Societal impacts on information systems development and applications* (pp. 1–400). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-0927-3