Preface

Project Management (PM) gained interest in the last years, as it proposes to structure standards for project planning, coordination, and execution. Several economic and social events demanded strategic projects for various objectives, such as innovation offers, competitive arrangements positioning, product lines diversification, exploration of new markets, among many others. The turbulent environment of projects, with eventually chaotic information and knowledge production and needs, became more interesting for studies, also demanding the application of principles as those discussed by Information Science to produce knowledge to be immediately applied by decision-makers and scholars.

This relationship between project management principles and information and knowledge management is critical nowadays, as it is essential to answer the demand for innovation for competitiveness integrating by all disciplines and organizational actions and features (as human resources, IT management, financial funding, logistics, etc.) in an efficient managerial context.

The *Handbook of Research on Effective Project Management through the Integration of Knowledge and Innovation* aimed to analyze the relationship between project management and information and knowledge management, from theoretical and practical points of view, especially observing the context of projects that propose innovations for firms and markets. The interdisciplinary theory approach was balanced throughout the text, as these fields advance in dynamic directions. This book searches to contribute both for future more advanced researches, and also to practical fronts, as business models proposition, marketing, and information technology decisions, and several other organizational tasks will be improved by effective information and knowledge management applied to project management definitions.

Information and Knowledge (I&K) are recognized as substantial supports for innovation. Although this affirmation is considered common sense, I&K could be better managed to be correctly handled by organizations in order to be applied in innovative projects. I&K management consists of several tasks to collect, register, valuate, codify, share, protect, and monitor existent and missing information and knowledge, as defined by authors in seminal studies.

Several aspects promote new researches around those main themes—information, knowledge, management, project, and innovation—creating opportunities for research and study about the relationship for these concepts. Other areas, such as human resources, organizational structure, patent and licensing, process management, information technology, and intellectual capital management, among many others, are also benefited by the comprehension of those fundamental concepts and how they are related. For instance, intellectual capital management focus is a decisive component for intricate managerial environments such as projects, considering it from operational to strategic levels, allowing better human resources policies and practices, negotiations to outsource works and project parts or components, or even to sell intellectual properties, as patents and licensing standards.
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Studies about these powerful and modern relationships can result in contribution for private and public strategies, at corporate or administrative levels, conducting to a potential gain for competitive advantage for innovative projects, which are precisely proposed applying information and knowledge managed for these purposes.

In order to approach these research opportunities, the book was broken into three major sections, as follows:

Section 1: Word from Organizers (Chapters 1 to 3).

The first three chapters were written by book editors and bring their view as the book project proponents. The purpose of this section is to present the overall book project ideas to the reader, exposing studies and thoughts from editors, announcing the commitment of the book.

Section 2: Theoretical Background – Searching for an Interdisciplinary Relationship (Chapters 4 to 12).

This section studies the theoretical basis for project management, information and knowledge management, and their perspectives of relationship as interdisciplinary propositions. It is an almost interminable studies context, as these disciplines are observed in demanding, strategic, critical, decision-intensive contexts of project management information and knowledge application. The chapters aimed to evaluate this relationship and how it can be defined for the practical contexts, evaluated in the next section. With this background effectively discussed, two main book objectives are reached. First, conditions to promote advanced research on several fronts and topics receive a fair contribution, based on a theoretical platform, designed with more detail and openness for these new studies and, additionally, it results in perspectives of more results from the cases approached in the second section. With this detailed theoretical study, there is a potential for learning improvement from the analysis of several authors, who presented cases of project management in various situations.

Section 3: Integrated Case Studies – Information, Knowledge, and Innovation Management (Chapters 13 to 26).

This section applies the fundamentals of theoretical approach developed in the second section to analyze competitive, organizational, technologic, and innovative project contexts, exposing studies from authors of several areas, different countries, and project environments. The multidisciplinary analysis allowed a deep phenomenon comprehension, illustrating PM/IM/KM relationship in a more precise fashion. This section offers, beyond the analysis of project management through IM and KM, the opportunity of best practices discussion, learning to technology application, human resources evaluation, and several other competitive conditions, which demand this integrated management processes. Project management abilities improvement is one of the main goals of the book, and it can result both from the theoretical discussion of the second section and its coherent application to case and practical issues analysis, formed in the third section.

It is opportune to reaffirm the book objectives, as it was proposed by its editors, as genuine project goals, in its start:
• Promote and advance a study about information and knowledge management applied for Project Management, as a substantial practical approach.

• Study and advance the association of information and knowledge conceptual contribution for project management, relating these constructs from a theoretical point of view.

• Discuss with more depth cases of the lack of information and knowledge management in the project management context, which are enhanced in its studies and results, providing the theoretical background composition.

• Exercise methodological approach for project management (especially for I&K issues) research, making it possible to provide guidance for researchers to widen the book scope.

• Contribute with other areas such as information technology planning and implementation, human resources management, innovation management, processes conception and management, knowledge-related competitive advantage, marketing, strategy, etc.

The intended target audience for this book is composed of practitioners and scholars of innovation management in its various contexts and views, of information and knowledge management (mainly those from fields of Information Science), from managerial sciences, such as Marketing and Strategy, and from technological-related fields, such as Healthcare or Information Technology, managers who face the challenges to innovate in their businesses, and other researchers and practitioners who want to better understand how information and knowledge can enable better project management. A special attention must be considered for Engineering—Production, Civil/Construction, Electronic, Electrical, Production—as “project” is one of the main topics for Engineering knowledge. Thinking this way, the book contributes significantly to this area, with a new perspective for IM, KM relationship to PM. The book can be applied to formal courses encompassed under graduation, post-graduation, and extension/technologic specific formations, such as those related with information technology certifications or innovation management practices.

In the first chapter, George Jamil and Luiz Fernando Carvalho brought into study the perspective of knowledge generation from immense bulks of data, as those nowadays called “big data,” emerging from modern application of mobile devices, interaction, communication, and social media. This production of information and knowledge in these environments is related to project management, offering special conditions to appreciate how these almost chaotic contexts can improve overall project management work.

Sérgio Maravilhas explores, in Chapter 2, how information management produces a more precise strategic platform for project management tasks, analyzing specifically with consideration of a real estate brokerage organization. Here, the PM organizational perspectives and social aspects are studied, producing a unique and opportune analysis result to understand the conceptual relationship focused in the book through the application of strategic principles and methods, resulting in an opportune relationship between strategic formulation and project management.

Armando da Silva and Fernanda Ribeiro structured, in Chapter 3, methodological principles for practical implementation of information management for project management works. It is a complex subject, which can be expressively benefited by this seminal text, provoking the reader to advance its studies in order to propose models for its practical applications. This third chapter can be defined as a roadmap for a safe start in a management model proposition for projects, with the significant contribution of Information Science, as it is practiced by Porto University Faculdade de Letras (FLUP).

Innovation management arena was observed by Elaine da Silva and Marta Valentim in Chapter 4, as the authors evaluated, through information science principles, how projects in these modern contexts
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can be better managed with contribution of KM approaches. This chapter illustrates, this way, one of the main objectives of the book, aligning methodological and theoretical aspects, when it evaluates how information and knowledge management, along with PM practices, helps to form the innovation system and process in one organization.

As knowledge dynamically emerges and is demanded in project works, it is opportune to understand how the management of tacit knowledge can implicate better project management situations. This comprehension was the goal of Dhouha Bouagina and Abdelfattah Triki, in Chapter 5, exercising the application of a taxonomy for this analysis, specifically for innovations positioning. It can be affirmed that this relationship is challenging to study, as it is usually affected by cultural and social aspects, along with managerial implementations—such as organizational structure and communication—that impacts on its potential collaboration for better project management.

Robert Buwule aimed to study the influence of information and knowledge management in strategic project management, in Chapter 6, regarding PM from this higher organizational level, observing it in corporative ICT (Information and Communication Technology) contexts. His analysis was held considering these ICT projects, providing a fundamental view of the focused relationship about IM, KM, and PM on the strategic level.

In Chapter 7, Cláudio Pessoa, Fabiana Silva, and Mônica Nassif observed the project management process, as defined by state-of-the-art PM principles, understanding knowledge sources and its relationships with managerial purposes and principles mainly for strategic changes. Models proposed from the specific literature, along with products and service positioning studies, were considered by the authors for their conceptual study, associating the overall strategic improvement with these enhanced abilities to manage information and knowledge for projects.

Cognitive background as a context for knowledge management for projects was the scenario researched by Aida Varela, Marilene Barbosa, and Maria Farias in Chapter 8, where models such as Structural Cognitive Modifiability Theory (SCMT) and Mediating Learning Experience theory (MLE) formed a conceptual base to understand how PM professionals learn and practice PM + IM + KM application. This chapter produces a complementary view for the book topics, as it introduces the personal cognitive aspects, together with organizational management, where projects are tools to achieve its proposed strategic objectives.

Innovation on technological products and services positioning were also assessed by José Monteiro, José Santos, and Fernando Almeida in Chapter 9, as the authors studied the complex conceptual relationship in planning-production arena, and aimed to comprehend how the interdisciplinary context can be correlated. The chapter brings undeniable opportunity for theoretical-practical application, producing significant results for innovations project management with an interdisciplinary approach, aligned to intended research principles for this book.

In Chapter 10, Viviana Marcial analyzed new trends on information management, identifying aspect of a so-called “Science 2.0,” exerted on innovation-based scenarios, as those from electronic communication, social media relationships, and open innovation management. It is proposed even a new paradigm observation for scientific methodological approach where IM and KM will implicate in more precise project management fundamentals, observing it from scientific communication paradigm, as it is typically practiced in Information Science researches.

As one of the most studied and discussed aspects of knowledge management, knowledge sharing was the focus of Maria Almeida and António Soares, in Chapter 11, observing this sub-process through organizational learning lenses in project management contexts. It was done considering and conceptualizing
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project-based organizations, where new PM contexts are continuously demanded. This chapter results in opportune conditions to improve PM practices through knowledge sharing perception in organizations which frequently unfold its competitiveness through projects.

João Silva Neto and Ítalo Coutinho proposed, in Chapter 12, a model for conceptual integration of innovation and knowledge management fundamentals oriented for project management. This modelling technique also allows to propose maturity levels where an organization can diagnose its current status and design future actions and plans to evolve to the next stage. As an initial effort, this chapter produces a base to model application for practitioners, also initiating a significant study context to PM practices improvement through KM.

In Chapter 13, Maria Marques analyzed how knowledge generated in interactions with customers is critical to improve project management practices, mainly those oriented to products and services offering by companies. A wide approach of constructs as customer satisfaction, executive profiles, human resources interaction, intellectual capital, information, knowledge, and innovation management is thoroughly worked by the author, with its repercussions over project management principles. The main conceptual contribution of this chapter is to promote a better comprehension of this dynamic relationship, allowing both theoretical research evolution and practical applications when evaluating all these aspects together.

Chapter 14, written by Maria Souza, also focuses on knowledge sharing sub-process of knowledge management on innovation-demand contexts, observing the complexities and critical factors for this relationship success. The balance of formal, structured, explicit “against” tacit knowledge, under managerial principles, is considered focusing strategic innovation decisions. Knowledge sharing encompass from its generation to practical applications, serving as a dynamic area where decisions for several management tasks are held in organizations, validating this chapter relevance.

In Chapter 15, Antonio-Juan Peñalver, Jose-Luiz Gonzalez, and Inmaculada Martínez contributed with the analysis of corporate governance, evaluating how it defines organizational information and knowledge management. A research held in several companies is exposed to evaluate the integration of several conceptual frameworks. This study is guided to appreciate, in the end, how IM and KM practices, built under governance directions, can affect project management for innovations. Spanish defense system context is the base of this analysis.

Oliver Krone produced, in Chapter 16, a relevant relationship among several important concepts for knowledge impacts on innovation facilitation, ranging from information systems theory to design principles. This robust study promoted an analysis regarding requirement analysis for information system design as a process of knowledge integration, expressing how the dynamic context of innovation demand by organizations and knowledge which is produced along its competitive project management tasks.

Another interesting analysis held about knowledge sharing concerning information and knowledge management came in Chapter 17, written by Dania Alkhaldhi. In a wide context approach, the author assessed this sharing regarding information technology projects and implications in organizational environment, or climate, approaching also the critical aspects of projects risk management practices. This chapter is concluded with an approach of an IT organization in its quest to outsource information technology services.

One mandatory aspect of all managerial principles that constituted the conceptual background for this book objective is measuring. It was deeply assessed by Kipokin Kasemap in Chapter 18, where the author analyzed how information technology and knowledge management can contribute for PM metrics
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proposition and application. As one of its results, the chapter produces a context that relates coherently IM, KM, and PM practices, serving as a remarkable way for book goals and marking a landmark for future researches.

Patrícia Souza, Ana Martins, Elimar Vasconcellos, Tina Stutzman, Renato Lacerda, Danilo Pires, Renato Macedo, and América Castiblanco evaluated how the integration of IM, KM, and PM fundamentals and practices are regarded in academic arenas, observing Brazilian cases of innovation management research and related practical application. Their Chapter 19 introduces the important economic context of emerging economies aligned to book objectives, enhancing its results. A case of a Brazilian startup company is analyzed at the end, consolidating the intended approach.

Another contribution from a country-related project management was proposed and developed by David Silva, José Pinto, Paula Gomes, and Filipa Ramalho, in Chapter 20. These authors studied the state-of-the-art of project management in Portugal, evaluating practices, implications, and repercussions under major PM institutions guidance and standards, as those proposed by PMI. The context of information technology projects was mainly considered for these purposes, producing a final study case that allowed the understanding of the issue of project management maturity for competitive companies in a market sector.

A practical application of information science conceptual background for library and community of practices contexts was approached by Rosario Avilés, Gonzalo Cuenca, Silvia Serrano, and Fernando Simón in Chapter 21, composing a multidisciplinary approach integrating several of the main concepts and scientific areas of the book project. Concepts from Information science, IM and KM where addressed and this conceptual integration applied to analyze how a library—as one of the most relevant informational unit and service—can integrate its social efforts to produce knowledge.

In Chapter 22, Leila Nemati-Anaraki studied the important aspect of infrastructure that allows information and knowledge sharing in organizations, showing results of a practical, Delphi method-supported research in a Medicine University. It was observed how knowledge professionals—for instance, faculties of educational institutions—perceived infrastructural tools, such as conferences and forums, as efficient managerial support for knowledge sharing, relating its proposition and implementation as undeniable factors for IM, KM, and PM relationship. As an opportune repercussion of this chapter, aspects for future infrastructures for knowledge sharing can be designed, aiming to contribute for project management.

Pedro Anunciação approached a model for Project Management, which considers information management in Chapter 23. Metavision project management plan framework was proposed to guide PM practices for information management in strategic level. The author consolidated the study evaluating one real information system project in Internet banking service context, as an intensive knowledge and information production and consumption scenario as a potential case for Metavision model application.

How can a university can deal with knowledge, regarding innovation management? This is the main question addressed by Manuela Pinto in Chapter 24, researching it in Portuguese institutional arena. In her chapter, the author observed the challenge of information and knowledge management, as educational institutions are exposed to regulatory, market, and technological pressures. As chapter outcomes, the reader will face some propositions for university role, as a main conductor of knowledge generation and applied research, regarding innovation management.

In Chapter 25, Jorge Magalhães, Rodrigo Cartaxo, and Adelaide Antunes analyzed the product development industrial, practical process, as a result for innovation demand on the field. A multifaceted
business scenario, of product development partnerships among government, pharmaceutical institutions, and corporations was the context for a practical study case in Healthcare sector, with its results shown and analyzed through theoretical principles at the end of the chapter.

Finally, in Chapter 26, Carlos Páscoa and José Tribolet researched how practical knowledge, as measurements held over works of Portuguese Air Force can be applied for knowledge generation for innovation management, mainly regarding changes in processes for strategic planning, reaching propositions for an analytical method for it. This study relates operational measurement, knowledge production for data, process management, and its strategic approach, serving perfectly the book’s purposes.

The conceptual integration of knowledge and information management towards qualified project management principles is the main objective of this book. As a project, it took several months to be concluded, serving exactly as a challenging example of its study context: it was a project, integrated by people—editors, authors, publishers—who, sometimes, were hard to integrate and compose, but with high, real perspectives of knowledge production. As a project that dealt with information and knowledge, under schedule, goal-seeking circumstances, the book itself was a good example about how complex, difficult, and precious the context of IM, KM, and PM, aligned and cooperative, can be. We wish you a good reading!

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