Preface

The reality is that there is very little research in service innovation. In the current economic environment, the service sector dominates the economies of the developed world. In this complex scenario, service is fast becoming the key driver of socio-economic, academic, and commercial research attention.

One of the main drivers that shape services and service companies, organizations, and governments is the increasing intensity of knowledge in services, and the impact of information and communication technologies on them. Because knowledge in knowledge-intensive services is typically located in product, service, or both, it is important to collect, store, modify, update, and distribute it in a way that would provide value for the clients.

Knowledge Management is concerned with all aspects of eliciting, acquiring, modelling, and managing knowledge, as well as its role in the construction of knowledge-intensive systems and services for the semantic web, knowledge management, e-business, natural language processing, intelligent information integration, and so on.

Application of knowledge resources successfully helps the organization to deliver creative products and services. Especially in service business, service job experience and information about the customer as well as the installed site equipment are key factors to deliver services efficiently and with high quality. In many cases supporting information is stored in different backend systems, and it needs to be retrieved, aggregated, and presented on demand. These requirements play a crucial role for contact centers, which have the first contacts with customers, as well as for the field service engineers, who have the closest contacts with the customers during executions of service jobs at the customers' sites.

The book's aim is to be an essential reference in the *subject area*s of a combination of knowledge management, innovation, information technologies and systems, and services industry.

Knowledge Management and Drivers of Innovation in Services Industries is organized into 19 chapters, which provide insight on knowledge management.

Chapter 1 (*ALSA CHINA: Knowledge Management and Drivers of Development and Innovation*) focuses on how ALSA began its operations in China in 1984, at the beginning of China´s policy of economic opening to the outside world. In order to become one of the companies of reference in the field of road passenger transport in China, ALSA has made a long process of adapting its business management to the characteristics of the country. This includes the establishment of a knowledge management system.

Chapter 2 (*Knowledge in Universities and Research Centres: Proposed Indicators for Measuring Relational Capital*) addresses how the knowledge economy and society is based on the creation, use, and dissemination of knowledge. It is clear that universities and research centres play a vital role in the knowledge creation, application and transfer processes. The current economic state, namely a financial crisis of international proportions, inhibits university and research and development program funding

and the implementation of the Bologna Process, this strategic resource (knowledge) must be suitably managed. In order to achieve this, it is necessary to measure existing knowledge-based resources (intellectual capital) and draw up knowledge maps. This chapter proposes a conceptual framework for analysing relational capital in universities and research centres and presents indicators for measuring each of its components.

Chapter 3 (*Alternative Call Center Operational Indicators to Customer Satisfaction*) focuses on developing a set of alternative call center operational performance indicators, in order to enhance the relationship between call center performance and customer satisfaction. To achieve this, a methodological approach is taken using surveys, as well as stepwise multiple linear regressions, and is developed from 6,616 cases collected during three months from the telecommunication industry. Generally, it is concluded that a set of alternative call center indicators covering three dimensions, namely the call center ability to resolve a problem, the call center responsiveness and the prior customer satisfaction with the call center, together with traditional indicators, present a statistically significant relationship with customer satisfaction. The insights from this study can help managers to improve the customer satisfaction with call center, as well as to better sub-contract outsourcing call center operators.

Chapter 4 (*How Are Professional Skills Acquired? A Structured Process of on-the-Job Learning*) examines the process of how the skills leading to professional performance are acquired in the context of on-the-job learning and identifies the key factors in this process. These examinations are based on an empirical examination of the on-the-job training periods of 20 Finnish vocational college students. The chapter suggests that there are several key elements in the learning process, such as individual activity, critical observation, conscious doing, and creativity.

Chapter 5 *(Knowledge Management in the Public Service: The Case of the Singapore Health Promotion Board)* discusses how Knowledge Management (KM) in the knowledge economy has gained strategic importance in management agenda in many organizations, including those in the service industries. Specifically, this chapter presents a case study of the Singapore Health Promotion Board (HPB). It examines how KM can be harnessed to improve public sector performance in an area where bottom-line performance is hard to define. , the case study examines the HPB's journey in using increasingly sophisticated KM processes, tools and techniques by analysing the development of the HPB's "Healthier Hawker Programme". The experiences and lessons learned during the HPB's KM journey are analysed and presented using the Learning with Knowledge (LK) Cycle. This model is useful to the formation of ontology for analytic discussion and the implementation of KM.

Chapter 6 *(Assessing Knowledge Assets in Renewable Energy SMEs in Scotland: A Methodological Framework)* develops a research protocol to identify a domain of organizational knowledge resources and assets within firms. Also it provides the final main insights of a research project managed by the Intellectual Assets Center in Scotland in order to support the adoption of knowledge asset management initiatives for driving innovation and performance improvement of Small and Medium Enterprises (SMEs) operating in the renewable energy sector. First, the chapter presents a methodology for valuing organizational knowledge assets within SMEs operating in the renewable energy industry. Then, an exploratory survey with a sample of 58 organizations from the Scottish renewable energy sector is introduced. Finally, the chapter analyses and discusses the main insights about SMEs' perception and orientation to identifying, measuring, and managing knowledge, and to qualitatively identify a feasible set of knowledge resources and assets potentially driving performance improvement.

Chapter 7 (*Inside Entrepreneurship and Innovation Activities*) aims to investigate how entrepreneurship affects not only and innovation capabilities, but also the whole periphery and economy. Additionally, it examines how technological innovation is essential if companies - and countries - are to maintain their competitiveness in global markets. There are many underlying problems and questions regarding the measurement of entrepreneurship and innovation activities. In particular, this chapter attempts to analyze the whole framework of entrepreneurship and innovation activities, and in particular, to analyse the effects and implications to growth and competitiveness. Within this context, it is also aiming to emphasize and review the appropriate techniques, the most common methods, and the particular related problem.

Chapter 8 *(Achieving Competitive Advantage through Innovation: The Case of the Shanghai Supermarket)* examines innovation in the service/retail sector. Specifically, the authors look at how it has not been fully examined in the non-Western literature. This preliminary work presents a study that was conducted in Shanghai, China, and consults three sets of the literature: Porter's Generic Strategies Model, Hunt's Resource Advantage Theory (R-A), and previous studies in the service and retail sectors. Findings developed from six selected successful Chinese supermarket companies have identified three types of innovation adopted by Chinese retailers: Technology based, non-technology based, and resource based innovation. The study takes a qualitative approach by using the methods of documentation survey and in-depth interviews with a panel of ten supermarket experts. Some managerial implications are explicated, and the limitations of the study and directions for future studies are discussed.

Chapter 9 *(Adverse Events and Medical Errors in Greece: Knowledge Creation and Capture Methods)* analyzes the lack of standardized nomenclature and a universal taxonomy-classification for adverse events and medical errors that complicates the development of a response to these issues. Also, it reviews numerous methods of adverse events' and medical errors' knowledge management. Each of these has evolved over time and adapted to different contexts.

Chapter 10 *(Dynamics in Knowledge)* addresses the origins of "artificial intelligence with knowledge." Since the idea has been introduced, numerous thoughts, theories, and ideas in various fields of engineering, science, geology, social study, economics, and management methods in general have arisen. Those things would have been started as an extension of modern engineering control theories and practices. This chapter introduces a new direction and method in "knowledge" by inaugurating the brand new idea of "Dynamics in Knowledge," which will behave more flexibly and intelligently in real usages.

Chapter 11 *(Towards an Improved Hotel Reservation System: A Fuzzy Approach to Improve Service Industries)* develops a tool that distinguishes, selects, and supplies among products with similar characteristics that appear in company catalogues the product that better adapts to the necessities of the users. In order to achieve this, it uses a search system based on fuzzy logic techniques which is able to handle vague information or of difficult specification. As a result, it is possible to administer the tool by rules of "common sense" which talk about indefinite amounts.

Chapter 12 *(A Risk Assessment Framework for Inter-Organizational Knowledge Sharing)* summarises literature on knowledge sharing and IS/IT risk assessment. The goal is to present a risk assessment framework that can help organizations identify valuable knowledge assets exposed through collaboration technologies. Also, it aims to assess the risk of knowledge loss, intellectual property leakage, and the subsequent loss of competitive advantage so that appropriate security mechanism can be designed to prevent such a loss.

Chapter 13 *(Knowledge Management for Web-Based Learning Systems)* addresses how there is very little information available concerning how different users learn and retain information on websites. Web-based system characteristics may be an influencing factor which could positively or negatively

impact a user's attitude. In this research, users' experience with information explains how different users derive the knowledge to use the systems that forms the basis of interaction with the system.

Chapter 14 (*A Predictive Modeling of Retail Satisfaction: A Data Mining Approach to Retail Service)* discusses how data mining allows managers to make more knowledgeable decisions by predicting future trends and behaviours. Marketing is one of the most widely used areas of data mining for the retail industry. Also, there are at least seven methods of analysis or statistical techniques that are commonly used in data mining. It is obvious that the approach to the data mining is the key determinant of the statistical technique to be used. Predictive modelling uses variety of techniques such as linear regression, logistic regression and their extensions can be used to identify patterns which can be used to predict the future. Specifically, this research focuses on the application of multiple regression technique a data mining tool in Indian retail industries to predict the retail satisfaction using store attributes as independent variables.

Chapter 15 *(Innovation for E-Services Management)* examines how over the last several years traditional services (face to face) have been transferred over to the electronic environment on the web also known as E-Services. There is very little knowledge to know how and why these services are used by consumers based on their knowledge and experience and motivation, ease of use and usefulness of e-services, acceptance and continued usage for e-services. This research explores the theoretical framework for developing e-services acceptance model (E-SAM).

Chapter 16 *(A Multi-Agent Knowledge Management System for Reactive and Proactive Knowledge Supply)* presents an agent-based architecture for integrating organizational knowledge repositories and business processes orchestrated by a workflow management system. This architecture proactively provides relevant knowledge to workflow tasks considering their context, and stores the information generated by its execution for future requirements. It describes components of the architecture, models a multi-agent system that enables the integration, presents a strategy to annotate and retrieval knowledge of non-structured information sources, and defines a new workflow pattern to be used in knowledge intensive tasks in order to make possible the knowledge provision. This architecture allows workers to count, in a proactive way, with all necessary information for the task executions without suspend their activities to retrieve information scattered in the organization. It reduces the wasted time in manual knowledge searches included in mostly knowledge management approaches.

Chapter 17 *(Framework of Knowledge and Intelligence Base: From Intelligence to Service)* introduces the concept of the "Intelligence Base." The Intelligence base was developed by the authors in a study on the information requirement of the management of a (military) organization. The purpose of the study was to conceive, for each level of an organization, an appropriate Decision Support System (DSS) and/or Knowledge and Information System. All systems would eventually have been integrated in an overall Enterprise Architecture (EA).

Chapter 18 *(Enhancing Information Retrieval Capabilities of Knowledge Management System)* addresses different dimensions of the major information retrieval techniques that can be used in a user services environment. Also, the chapter seeks to propose new models to enhance retrieval capabilities of KM systems. The basic elements that make up an information retrieval system including metadata, controlled and uncontrolled vocabularies are discussed. The chapter proposes three experimental search interfaces for enhancing information retrieval capabilities of a KM system.

Chapter 19 *(Knowledge Management in Educational Games)* proposes to answer the question "How should one address knowledge in educational games?" from the ongoing topic of using educational games during teaching process. A model is proposed that will attempt to establish the balance between knowledge integration into game on one side and its reusability on other. This model driven approach

is relying on use of Learning Objects (LO) as constructing pieces of knowledge resources which are specialized for educational game design purpose. Presented models contribute to methodology of educational games development in a way that they embrace principles of learning and knowledge management early in design process. The applicability of the models is demonstrated in design case study, where educational game editors were created. This allows an educator to easily define new educational game utilizing existing knowledge, assessment, and multimedia from repository.

Patricia Ordóñez de Pablos
The University of Oviedo, Spain

Miltiadis D. Lytras
American College of Greece, Greece