

# Data Analytics Applications in Latin America and Emerging Economies



Edited by **Eduardo Rodriguez**



## Data Analytics

This book focuses on understanding the analytics knowledge management process and its comprehensive application to various socioeconomic sectors. Using cases from Latin America and other emerging economies, it examines analytics knowledge applications where a solution has been achieved. Written for business students and professionals, as well as researchers, the book is filled with practical insight into applying concepts and implementing processes and solutions.

The eleven case studies presented in the book incorporate the whole analytics process and are useful reference examples for applying the analytics process for SME organizations in both developing and developed economies. The cases also identify multiple tacit factors to deal with during the implementation of analytics knowledge management processes. These factors, which include data cleaning, data gathering, and interpretation of results, are not always easily identified by analytics practitioners.

This book introduces the steps to perform analytics work in organizations starting from problem definition and data gathering to solution implementation and evaluation. It presents the Analytics Knowledge Management Process, which is comprised of the following sub-processes:

- Analytics knowledge creation
- Analytics knowledge storage and access
- Analytics knowledge transfer
- Analytics knowledge application

The real-world cases cover a wide spectrum of topics related to applications, including theoretical treatment. They focus on data cleaning, data gathering, analytics methods and techniques, data integration, and data analysis.

This book promotes the understanding of analytics knowledge management processes. It guides readers through numerous techniques and methods available to analytics practitioners by explaining the strengths and weaknesses of these methods and techniques.



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# **Data Analytics Applications**

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# Introduction

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There are several books on developing, in an independent way, the technical aspects of analytics and its use in problem-solving and decision-making processes. This book concentrates on understanding the analytics knowledge management process and its applications to various socioeconomic sectors in a comprehensive manner. The analytics knowledge applications are presented using cases from Latin America and Emerging Economies where a solution has been achieved.

The Latin American and Emerging Economy examples are especially interesting to study because they can incorporate the whole analytics process. They are also good reference examples for applying the analytics process for SME organizations in some developed economies. Furthermore, the selected cases are a means to identify multiple tacit factors to deal with during the analytics knowledge management process implementation. These factors which include data cleaning, data gathering, and interpretation of results are not always easily identified by the analytics practitioners. This is driven by the fact that analytics process descriptions come mostly from developed economies with very solid and mature organizations that have already overcome several barriers in implementing analytics.

This book introduces the steps to perform analytics work in organizations starting from problem definition and data gathering to solution implementation and its evaluation. This book is organized into two sections: Section I includes Chapters 1 and 2. Chapter 1 is about the evolution of the analytics concept and the factors that are converging for the adoption of the analytics knowledge and process. This chapter presents the alignment of analytics concepts, their evolution, and the relationship to strategy formulation and management control systems. In Chapter 2 the focus is on the analytics knowledge adoption and the presentation is based on the review of the Analytics Knowledge Management Process. The presentation of the Analytics Knowledge Management Process is developed with a review of the analytics knowledge management subprocesses: analytics knowledge creation, analytics knowledge storage and access, analytics knowledge transfer, and analytics knowledge application.

Section II is related to the applications of analytics knowledge to real-world cases. There are 11 cases included with a wide spectrum of topics and explaining the theoretical treatment that some of the applications require. These cases cover



several socioeconomic problems faced by Latin American and emerging economies. The selected cases pay special attention to the description of how to combine analytics methods and techniques, data integration, and appropriate analytics knowledge.

This book crucially facilitates the understanding of analytics methods and techniques of almost every person in an organization. Given that the number of techniques and methods available to analytics practitioners is very large, this book concentrates on explaining the strengths and weaknesses of methods and techniques commonly described by authors. This approach is in search of supporting business managers and professionals who seek to design and control the application of their analytics arsenal.

This book is written for leaders in areas such as marketing, planning, risk management, production and operations; students of MBA and MSc in management-related areas; industrial engineering, applied economics, executive education programs, and for educators, researchers, students, and practitioners in management and information technology and related fields.

This book has a concentration on analytics knowledge management subprocesses, review of problems in multiple sectors in Latin America and Emerging Economies, review of several analytic techniques to solve problems, and the use of the most updated methods associated with the problems. The cases to illustrate the analytics process in action comprise in Chapter 3 the application of analytics in healthcare services in Mexico; Chapter 4 presents the application of social networks in the process of product adoption in Chile; Chapter 5 introduces the order acceptance illustration for prescriptive analytics with a case in Mexico; Chapter 6 includes the uncertainty aspects of analytics reviewing a case from Chile for improving production planning; Chapter 7 shows how scrapped data can be applied in the creation of macroeconomic indicators in Latin America; Chapter 8 offers a comparison of credit risk classification methods using Peruvian bank data; Chapter 9 shows an analytics application for the understanding of ports management based on information systems development using Colombia's data; Chapter 10 introduces the use of analytics knowledge application in education comparing the entrepreneur education in Colombia and Peru; Chapter 11 brings to the analysis the ICT problems where analytics knowledge can be used illustrating the definition of software reliability in a Colombian university decision; Chapter 12 shows the use of text analytics for the understanding of the concept entrepreneurship in Latin-American economies; and finally in Chapter 13 an application of social media analysis is presented to review what people are saying in Chile regarding the healthcare services.

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# **EVOLUTION AND ADOPTION OF THE ANALYTICS PROCESS**

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**I**



