Preface

Neuroscience is an emerging new discipline that combines many sciences that study—from an inter-, multi-, and cross-disciplinary perspective—the structure and functional organization of the nervous system, with a particular focus on the brain. It has specialized applications in different fields of knowledge, such as neuromangement, neurofinance, neuromarketing, neuroLeadership, etc. All these applications are oriented towards the decision-making process of economic agents, mainly regarding the role emotions play in it. Consumers, company CEOs, political electors, etc., they all make decisions based on emotions, because we are emotional beings. When it comes to knowing and understanding how our decisions can allow us to advance the success of business relations and exchanges, the research in neuroscience applied to the business and economic world has come a long way. It’s time to gather the best examples of each branch.

Neuromangement, neurofinance, neuromarketing, and neuroLeadership are neuroscience branches focused on studying the neurophysiological processes involved in decision-making. Their mission is to understand how the nervous system translates the amount of stimuli that an individual receives every day and to process its consequences and applications. The book will put forward scientific studies, applications, methodologies, techniques and implications of new areas derived from neuroscience. The goal is to learn about new developments in the field of study.

This book is aimed at providing relevant theoretical frameworks and the latest empirical research findings in the area. The objective of this book is to collect scientific studies on business, finance and the economy in general. It is not only a popular book, but also a book that brings forward the latest real-world applications: experiments and studies with relevant managerial implications. The reader of this book will find the latest applications of neuromarketing and innovative neuroscientific techniques, from EEG to MRI machines. This text is the only one of its kind, which makes it a must read and a reference source for researchers and managers interested in neuroscience. In addition, you will find applications from various social science fields, with a variety of techniques and methods.
This book will be appreciated by all novice or senior researchers in the marketing, economics and business areas, as well as by researchers interested in neuroscience, business managers and students interested in the trends, applications and developments of neuromanagement. The book will serve as reference technologies, methodologies, results and study areas applied to neuroscience, economics and business, from which readers will learn the main developments and applications.

Each chapter has been selected among the professionals in the field and the best qualified researchers who have expressed their intention of being part of this book. We believe this book stands out thanks to the quality of their contributions.

The contents of the book have been divided in three sections. The first sections is an introduction to neuromarketing, conceived especially for novice readers in this field. This first section presents the different methodologies and resources applied to the study of response through neurophysiological techniques. It starts with a brief description of each technique, followed by their application to consumer-oriented research. Subsequently, different applications are presented based on a review of some of the studies conducted in the field.

The second section of the book contains chapters with applications in different areas of neuroscience oriented towards consumer behavior in the economy, in business and marketing. In particular, the reader is presented with cases of application in the financial market. Further in this section, the emotional influence of a political candidate is explained through facial recognition, followed by an insight in decision-making and how it is influenced by the rational and emotional processes. Two more chapters complete this section with an assessment of the advertising efficiency by means of the electroencephalogram technique, closing it with a study of the influence of personality in the use of social networks.

The third section of the book contains two chapters about the situation of neuromarketing in the research of consumer behavior and its application in agencies and professional media. More exactly, the first chapter is built as a critical bridge between academic studies on the one hand and the sector-specific applications on the other, while the second chapter shows the state of application of these neurophysiological techniques among advertising agencies.

**INTRODUCTION TO NEUROMARKETING: TECHNIQUES AND STATE-OF-THE-ART**

The first chapter (‘‘Assessing Consumer Reactions with Neuroscientific Measurements’’) provides a general understanding of the meaningful application of neuroscientific measurements in consumer research, as well as a critical reflection on the opportunities and challenges of different neuroscientific measurements. Additionally,
it carries out a deeper review of the neuroscientific techniques from an approach to the consumer.

The title of the second chapter is “Neuromarketing Step by Step: Based on Scientific Publications”. Firstly, it makes a brief introduction to the concept and history of neuromarketing. Further on, it discusses the most commonly used techniques in the field and describes the ten steps that every neuromarketing project should implement.

The third chapter is titled “Neuromarketing Perspective of Consumer Choice”. The author explores the decision-making system and how the application of neurophysiological techniques can explain and even predict, in the near future, users’ and consumers’ behavior in the market. It then continues with a review of the scientific outlook on advertising and brand, with the aim of raising readers’ awareness on the existing studies, results and applications related to the use of emotions in advertising, brand building and packaging. This chapter intends to serve as an approach to the state of knowledge.

The title of the fourth chapter is “Experiential Marketing: Searching for Emotional Connection with Consumers in POS Systems”. It is a demonstration that it is possible to monitor consumers in real environments without intrusive technologies and that applying unforgettable experience to increase brand loyalty can be useful. The chapter evidences the use of technological innovation to monitor human behavior in the marketing sector. The author places emphasis on facial emotion recognition algorithms to explain how technology can be implemented in real environments such as retail, to predict future consumer behavior. The readers will have access to real cases of companies applying neuroscientific tools to business practice.

The last chapter is titled “Mastering Cognitive Neuroscience and Social Neuroscience Perspectives in the Information Age”. This chapter explains the overviews of cognitive neuroscience, neuroimaging techniques, social cognitive neuroscience (SCN), social neuroscience, and social cognition. This chapter aims to bridge the literature gap with a thorough literature consolidation of cognitive neuroscience and social neuroscience perspectives.

**SECTORIAL APPLICATIONS**

Stemming from the aftermath of the Global Financial Crisis, the chapter “Neuroscience Applications in Financial Markets”, explores how social learning dynamics are likely to replace expected utility frameworks in financial decision-making through the extension of heuristics-based findings and the latest advances in cognitive behavioral sciences.

The seventh chapter, “Emotional Connection Candidate: Facial Coding and Neuropolitics”, focuses on the application of the neuroscientific methodology in the
political sphere. In particular, it highlights the need to design emotional-connection strategies in current election campaigns, since nowadays neuroscience has proven a decisive impact of emotions on voters’ choice. This chapter analyzes the impact of traditional market research methods and new applications, to understand the emotional level in a candidate’s credibility. Lastly, the chapter makes an analysis of the main candidates to Spain’s General Election campaign in December 2015, based on their election posters and interventions in the election debates.

Chapter number 8 is titled “Interaction between Emotional and Rational Aspects in the Consumer Purchase Process of Typical Italian Food Products”. This chapter aims at analyzing consumers’ cognitive and emotional choices towards typical Italian products. The results could be used to support specific campaigns for enhancing typical products, by means of targeted communication highlighting emotional components involved in the purchase process.

“Marketing Meets Neuroscience: Useful Insights in Gender Subgroups during the Viewing of Commercials” is the name of the ninth chapter, which presents the results of an experiment aimed at researching cognitive changes in brain activity during the viewing of commercials on TV. Findings show how EEG methodologies can be used for obtaining information that could not be obtained through verbal interviews. These brain indices could help analyzing how TV commercials are perceived according to the target consumer’s gender.

The last chapter, “How is the Personality of Facebook Customers? Cloninger’s Psychobiological Model of Temperament as a Predictor of SNS”, is aimed at critically analyzing the relation between Cloninger’s psychobiological model of temperament and the use of social networking sites (SNS) by young adults. Moreover, this study tends to close the existing knowledge gap in this area.

**THE MARKET OF EMOTIONS**

“Neuroscience Applications on the Assessments of TV Ads” is the title of the fifth chapter, aimed at providing a critical bridge between academic studies and sector-specific applications, as well as at underlining the most common uses of these methods in the assessment of TV commercials. More interestingly, the debatable issues and future prospects regarding the research agenda will be discussed in the last part of this chapter.

The chapter “Neuromarketing from the Perspective of Advertising Professionals: A Battle between Creative and Strategic Planners” puts forward the state of application of neurophysiological techniques by advertising agencies, through senior employees working on creativity-related aspects and strategic planning. The most
significant topics dealt with are research in advertising, new perspectives and current state of their application in the field of advertising.

This book will be appreciated by all novice or senior researchers in the marketing, economics and business areas, as well as by those researchers interested in neuroscience, business managers and students interested in knowing the neuromanagement trends, applications and developments. The book will be used as a reference for technologies, methodologies, results and study areas applied to neuroscience, economics and business, and its readers will learn about the main developments and applications in the field.

All this work has been completed with excellent final results. The book begins with basic concepts, to gradually inquire into very practical and specific applications in the field of neuroscience applied to the economic and business world. Without a doubt, this book can satisfy both the experts in the area and the novice researchers who intend to know this complex field better. We hope readers will be able to appreciate the huge work carried out by the authors and their contribution.