
Introduction

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Marketing Science contributes significantly to the development and validation of analytical tools with a wide range of applications in business, public policy and litigation support. The *Handbook of Marketing Analytics* showcases the analytical marketing methods and their high-impact real-life applications. Fourteen *methods* chapters provide an overview of specific marketing analytic methods in some technical detail and 22 *case studies* present thorough examples of the use of each method in marketing management, public policy, or litigation support. The contributing authors are recognized authorities in their area of specialty.

Marketing is both a science (academic discipline) and a managerial practice. Its basic tenet is that customer-oriented managerial actions—including product, pricing, communication, and distribution decisions—should generate value for their targeted audiences. Since these actions are generally costly, value creation efforts on the part of the firms have to result in customer response (such as consumer purchases) that is strong enough to justify the costs and to generate profits for the firm. Many factors influence consumer demand, and not all of these are under control of the marketer. As such, disentangling the effects of multiple factors and assessing the top-line and bottom-line impact of marketing has been and remains a critical challenge.

The academic discipline of marketing has developed and adopted a number of scientific techniques that enable the assessment of marketing impact. Implementation of these techniques in the academe is often referred to as *marketing science*. Many of these scientific techniques have been transferred to the world of marketing practice, where they are now generally referred to as *marketing analytics*. Importantly, the range of applications has reached beyond the *marketing function* in companies and non-profit organizations to include the domain of *public policy* and to serve as means to conflict resolution in *litigation support*. While the definition of the intended beneficiaries in marketing (management), public policy (regulators), and litigation (plaintiffs and defendants) differs, the challenges facing the marketing scientist, policy analyst, and expert witness are rather similar, be it predicting consumer response to a new product introduction or information campaign, assessing the value of

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an intangible asset, or establishing a causal link between firm or policy maker's actions and consumer behavior.

For example, advertising informs consumers of the benefits of purchasing and using a certain product or service. Advertising is costly to the firm, and a typical marketing analytics task is to determine to what extent the additional revenue generated by the advertising campaign exceeds its cost. In a public policy setting, marketing analytics may be used to address a similar question when the targeted audience is society at large: did a communications campaign to educate citizens about the advantages of healthy eating habits make a meaningful difference on health outcomes in the population? Finally, in a litigation support setting, marketing analytics may be used to assess the loss of revenue and profitability of one brand as a result of false advertising initiated by a competitor.

Marketing analytics has been successful in adopting and refining techniques from several academic disciplines, including economics, econometrics, operations research, statistics, psychology, sociology and computer science. In particular, marketing analytics is equally adept at using primary and secondary data sources, and is equally motivated by research objectives of description, prediction, and causal inference. This multi-disciplinary nature of the field has motivated us, via this *Handbook of Marketing Analytics*, to showcase the various analytical marketing methods and their high-impact real-life applications.

As a guide to our readers, the accompanying table presents an overview of how the applications chapters relate to the methods chapters. Note that the correspondence is not always one-to-one, i.e., in many cases the applications chapter illustrates more than one marketing science method. We hope that this collection of outstanding contributions to methodology and application will be educational and inspirational to our readers, whether they are academics or practitioners in the areas of marketing, public policy or litigation.

Methods Chapter	Applications in Marketing Management	Applications in Public Policy	Applications in Litigation Support
1. Laboratory experiments		<ul style="list-style-type: none"> • Consumer (mis) behavior and public policy intervention (Chapter 22) 	<ul style="list-style-type: none"> • Avoiding bias (Chapter 28) • Experiments in litigation (Chapter 29)
2. Field experiments		<ul style="list-style-type: none"> • Consumer (mis) behavior and public policy intervention (Chapter 22) • Nudging healthy choices (Chapter 23) • Promoting environmentally friendly consumer behavior (Chapter 24) • Regulation in online advertising markets (Chapter 25) 	<ul style="list-style-type: none"> • Experiments in litigation (Chapter 29)
3. Conjoint analysis	<ul style="list-style-type: none"> • Industry applications (Chapter 15) 		<ul style="list-style-type: none"> • Conjoint analysis in litigation (Chapter 30) • Applications in antitrust (Chapter 31) • Feature valuation using equilibrium conjoint analysis (Chapter 32)
4. Time-series models	<ul style="list-style-type: none"> • Online and offline funnel progression (Chapter 16) 	<ul style="list-style-type: none"> • Narcotics use and property crime (Chapter 26) 	

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Methods Chapter	Applications in Marketing Management	Applications in Public Policy	Applications in Litigation Support
5. Panel data models	<ul style="list-style-type: none"> Effectiveness of direct-to-physician pharmaceutical marketing (Chapter 17) 		<ul style="list-style-type: none"> Evaluating harm in a breach of contract (Chapter 33)
6. Causality and endogeneity	<ul style="list-style-type: none"> Effectiveness of direct-to-physician pharmaceutical marketing (Chapter 17) 		
7. Choice models	<ul style="list-style-type: none"> Automakers' pricing and promotion planning (Chapter 18) 		
8. Bayesian econometrics		<ul style="list-style-type: none"> Impact of the "Cash for Clunkers" policy (Chapter 27) 	
9. Structural models		<ul style="list-style-type: none"> Impact of the "Cash for Clunkers" policy (Chapter 27) 	<ul style="list-style-type: none"> Feature valuation using equilibrium conjoint analysis (Chapter 32)
10. Latent structure analysis	<ul style="list-style-type: none"> Visualizing competitive market structure (Chapter 19) 		<ul style="list-style-type: none"> Avoiding bias (Chapter 28) Surveys in trademark infringement (Chapter 34) Surveys to evaluate a claim (Chapter 35)
11. Machine learning			<ul style="list-style-type: none"> Machine Learning in Litigation (Chapter 36)

Methods Chapter	Applications in Marketing Management	Applications in Public Policy	Applications in Litigation Support
12. Big data	<ul style="list-style-type: none">• Visualizing competitive market structure (Chapter 19)• User profiling in display advertising (Chapter 20)		
13. Meta analysis	<ul style="list-style-type: none">• Generalizations in eight marketing areas		
14. Optimization	<ul style="list-style-type: none">• Online and offline funnel progression (Chapter 16)• Optimization for marketing budget allocation at Bayer (Chapter 21)		
