

MARKETING IN A DIGITAL WORLD

REVIEW OF MARKETING RESEARCH

Editor-in-Chief: Naresh K. Malhotra

EDITORIAL ADVISORY BOARD

Rick P. Bagozzi
University of Michigan, USA

Russell Belk
York University, Canada

Ruth Bolton
Arizona State University, USA

George Day
University of Pennsylvania, USA

Dhruv Grewal
Babson College, USA

Michael Houston
University of Minnesota, USA

G. Tomas M. Hult
Michigan State University, USA

Shelby Hunt
Texas Tech University, USA

Dawn Iacobucci
Vanderbilt University, USA

Barbara Kahn
University of Pennsylvania, USA

Wagner Kamakura
Rice University, USA

V. Kumar
Georgia State University, USA

Donald Lehmann
Columbia University, USA

Debbie MacInnis
*University of Southern California,
USA*

Kent B. Monroe
University of Illinois, USA

Nelson Ndubisi
*King Fahd University of Petroleum &
Minerals, Saudi Arabia*

A. Parasuraman
University of Miami, USA

William Perreault
University of North Carolina, USA

Robert A. Peterson
University of Texas, USA

Jagmohan S. Raju
University of Pennsylvania, USA

Vithala Rao
Cornell University, USA

Aric Rindfleisch
University of Illinois, USA

Jagdish N. Sheth
Emory University, USA

Itamar Simonson
Stanford University, USA

David Stewart
Loyola Marymount University, USA

Rajan Varadarajan
Texas A&M University, USA

Michel Wedel
University of Maryland, USA

Stephen L. Vargo
University of Hawaii, USA

Manjit Yadav
Texas A&M University, USA

REVIEW OF MARKETING RESEARCH VOLUME 16

MARKETING IN A DIGITAL WORLD

EDITED BY

ARIC RINDFLEISCH

*Department of Business Administration,
University of Illinois, USA*

ALAN J. MALTER

*Department of Managerial Studies,
University of Illinois, USA*



United Kingdom – North America – Japan
India – Malaysia – China

Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2019

Copyright © 2019 Emerald Publishing Limited

Reprints and permissions service

Contact: permissions@emeraldinsight.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-1-78756-340-7 (Print)

ISBN: 978-1-78756-339-1 (Online)

ISBN: 978-1-78756-341-4 (Epub)

ISSN: 1548-6435 (Series)



ISOQAR
REGISTERED

Certificate Number 1985
ISO 14001

ISOQAR certified
Management System,
awarded to Emerald
for adherence to
Environmental
standard
ISO 14001:2004.



INVESTOR IN PEOPLE

This volume is dedicated to Sidney J. Levy, a marketing legend who made the world more magical.

This page intentionally left blank

CONTENTS

<i>About the Editor-in-Chief</i>	<i>xi</i>
<i>About the Contributors</i>	<i>xiii</i>
<i>Editor-in-Chief Introduction</i>	<i>xix</i>
Transitioning to a Digital World <i>Alan J. Malter and Aric Rindfleisch</i>	<i>1</i>
Marketing in the Digital Age: A Moveable Feast of Information <i>Kristen Lane and Sidney J. Levy</i>	<i>13</i>
The Impact of Digital Innovations on Marketing and Consumers <i>Brian T. Ratchford</i>	<i>35</i>
Big and Lean is Beautiful: A Conceptual Framework for Data-based Learning in Marketing Management <i>Emre Soyer, Koen Pauwels and Steven H. Seggie</i>	<i>63</i>
The Growing Importance of Software as a Driver of Value Exchange <i>Charles F. Hofacker</i>	<i>85</i>
Mobile Marketing 2.0: State of the Art and Research Agenda <i>Unnati Narang and Venkatesh Shankar</i>	<i>97</i>
All's Not Well on the Marketing Frontlines: Understanding the Challenges of Adverse Technology—Consumer Interactions <i>Utpal Dholakia</i>	<i>121</i>
Perceived Deception in Online Consumer Reviews: Antecedents, Consequences, and Moderators <i>Sergio Román, Isabel P. Riquelme and Dawn Iacobucci</i>	<i>141</i>

Self-manufacturing via 3D Printing: Implications for Retailing Thought and Practice	
<i>Aric Rindfleisch, Alan J. Malter and Gregory J. Fisher</i>	167
<i>Previous Volume Contents</i>	189
<i>Index</i>	209

ABOUT THE EDITOR-IN-CHIEF

Naresh K. Malhotra was selected as a *Marketing Legend* in 2010 and his refereed journal articles were published in nine volumes by Sage Publishing with tributes by other leading scholars in the field. He is listed in Marquis *Who's Who in America* continuously since 1997, and in *Who's Who in the World* since 2000. In 2017, he received the Albert Nelson Marquis *Lifetime Achievement Award* from Marquis Who's Who. He has several *top* (number one) research rankings that have been published. He is a highly cited author with more than 62,000 Google Scholar citations.

This page intentionally left blank

ABOUT THE CONTRIBUTORS

Utpal Dholakia (PhD in Marketing, University of Michigan) is a Professor of Management and holds the George R. Brown Chair of Marketing at Rice University. He teaches marketing and pricing to MBA students at Rice University, and conducts research on consumer behavior and marketing strategy issues. Utpal's research has been published in the top marketing and management journals. He has consulted and provided expert witness services to financial services, technology, healthcare, and energy companies.

Gregory J. Fisher (PhD in Marketing, University of Illinois at Urbana-Champaign) is Assistant Professor of Marketing at Miami University's Farmer School of Business. His research has been published in outlets such as the *Journal of the Academy of Marketing Science*, *Journal of Product Innovation Management*, *Journal of Business Research*, *Industrial Marketing Management*, and *International Business Review*. His research interests in marketing strategy explore marketing capabilities, interorganizational learning, marketing alliances, open innovation, 3D printing, and new product development.

Charles F. Hofacker (PhD in Mathematical Psychology, University of California, Los Angeles). He is Carl DeSantis Professor of Business Administration and Professor of Marketing at the College of Business of Florida State University. He was Visiting Professor at Università Bocconi in Milan, Italy, in 2001, 2007, and 2015, and at Northeastern University in 2014. His research interests are at the intersection of marketing and information technology. His work in that and other areas has appeared in the *Journal of Marketing Research*, *Psychometrika*, *Management Science*, *Journal of Management*, *Journal of the Academy of Marketing Science*, *Journal of Advertising Research*, and other outlets. He was first Co-editor and then Editor of the *Journal of Interactive Marketing*. Dr Hofacker is also the moderator of ELMAR, an electronic newsletter and community platform for academic marketing with over 8,000 subscribers.

Dawn Iacobucci (PhD in Psychology, University of Illinois at Urbana-Champaign) is Professor of Marketing at Vanderbilt University (2007–present); previously she was at Kellogg (1987–2004), Arizona (2001–2002), and Wharton (2004–2007). Her research focuses on networks and methodological research questions. She has published in journals such as the *Journal of Marketing*, *Journal of Marketing Research*, *Harvard Business Review*, *Journal of Consumer Psychology*, *Marketing Science*, *Psychometrika*, *Psychological Bulletin*, and *Social Networks*. She was Editor of both the *Journal of Consumer Research* and *Journal of Consumer*

Psychology. She is Author of *Marketing Management*, *Marketing Models*, *Mediation Analysis*, and Co-author with Gilbert Churchill on *Marketing Research*.

Kristen Lane is a Doctoral Candidate in Marketing at the Eller College of Management, University of Arizona. Her research explores identity-based processes that hinder or help the flow of credible information. She is particularly interested in how consumers manage information resources, via the information behaviors of acquisition and sharing, to fulfil self-defense, affiliation, and accuracy motives. She has presented her work at academic conferences, including the American Psychological Association (APA), the Association for Consumer Research (ACR), and the Brands and Brand Relationships Conference (BBR), and at doctoral symposiums including the Yale Whitebox Advisors Graduate Student Conference and the Robert Mittelstaedt Doctoral Symposium.

Sidney J. Levy (PhD in Human Development, University of Chicago) passed away in March 2018 after a long and distinguished career as a pioneer of modern marketing. He was the Coca-Cola Distinguished Professor of Marketing at the University of Arizona, where he served as the Head of the Marketing Department from 1997 to 2004. Before Arizona, Dr Levy served as Chair of the Marketing Department at Northwestern University (1980–1992). Prior to Northwestern, he was a Lecturer at the University of Chicago (1958–1959), where he received his PhD in 1956. He was a prolific scholar, publishing continuously for more than seven decades from 1947 until 2019. Dr Levy also consulted for many organizations including Social Research Inc, Coca-Cola, Cadillac, General Mills. His industry projects and academic publications revolutionized market research and transformed how practitioners and academics alike think about brands and consumption. He trained generations of marketing scholars and practitioners who have followed his path. Dr Levy received many awards for his insightful and timeless contributions to marketing theory and practice. He was named an Association of Consumer Research Fellow in 1982, recognized as the American Marketing Distinguished Educator in 1988, named a Living Legend of Marketing in 1997, and awarded the Paul D. Converse Award for outstanding contributions to the science of marketing in 2000. Since 2008, the Sidney J. Levy Award has been given annually to the top Consumer Culture Theory dissertation article published in the previous year. A leader in the field, Dr Levy was and remains a marketing legend.

Alan J. Malter (PhD in Marketing, University of Wisconsin-Madison) is Associate Professor of Marketing at the University of Illinois at Chicago. His research examines how consumers perceive and respond to new technologies, geographic branding and marketing systems, organizational learning and innovation, the changing role of marketing, and longitudinal research designs. His work has been published in the *Journal of Marketing Research*, *Journal of Marketing*, *Journal of Consumer Psychology*, and *International Journal of Research in Marketing*, among others. He was previously on the faculty at University of

Arizona, and has been a visiting faculty member at the University of Maryland, Tel Aviv University, and the Interdisciplinary Center in Herzliya.

Unnati Narang is a Doctoral Student in Business Administration (Marketing) at the Mays Business School, Texas A&M University. Her research models the causal impact of marketing strategies relating to mobile and platform technologies on consumer and firm decisions. Her projects span omni-channel retailing, education, and gaming industries. Her research on the impact of mobile app introduction on online and offline purchases and product returns for a multi-channel retailer has been acknowledged by SSRN as among the top 10 downloaded articles and also by the Marketing Science Institute (MSI).

Koen Pauwels (PhD in Marketing, University of California, Los Angeles) is Distinguished Professor of Marketing at Northeastern University and Co-director of its DATA Initiative. He was chosen as a “Top 100 Inspirational Alumnus.” His books include *Modeling Markets* and *Advanced Methods for Modeling Markets* for researchers and *It’s Not the Size of the Data – It’s How You Use It: Smarter Marketing with Analytics and Dashboards* for managers. Professor Pauwels has published over 50 articles on marketing effectiveness. He is an Associate Editor for the *Journal of Marketing* and *International Journal of Research in Marketing* and Vice President of Practice at the INFORMS Association for Marketing Science.

Brian T. Ratchford (PhD in Business Economics, University of Rochester) is the Charles and Nancy Davidson Chair in Marketing at The University of Texas at Dallas. His research focuses on economics applied to the study of consumer behavior, information economics, marketing productivity, marketing research, and electronic commerce. He is a Fellow of the INFORMS Society for Marketing Science. He has published extensively in leading marketing journals, including *Marketing Science*, *Management Science*, *Journal of Consumer Research*, and *Journal of Marketing Research*. He is currently Editor of the *Journal of Interactive Marketing*.

Aric Rindfleisch (PhD in Marketing, University of Wisconsin-Madison) is the John M. Jones Professor of Marketing and Executive Director of the Illinois MakerLab at the University of Illinois at Urbana-Champaign. Aric’s research, which mainly focuses on consumers and brands, interfirm relationships, and new product development has been published in several leading academic journals including the *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Consumer Research*, *Journal of Operations Management*, and *Strategic Management Journal*.

Isabel P. Riquelme (PhD in Marketing, University of Murcia) is Assistant Professor of Marketing at Universidad Miguel Hernández (Spain). Her articles have appeared in the *Journal of Interactive Marketing*, *Journal of Business Ethics*,

Ethics and Information Technology, Journal of Electronic Commerce Research, and Electronic Markets, among other journals. Her research interests are focused on online retailing, business ethics, and socially responsible consumption.

Sergio Román (PhD in Marketing, University of Murcia) is Professor of Marketing at the University of Murcia (Spain). His articles have appeared in the *Journal of the Academy of Marketing Science, Journal of Business Research, Journal of Interactive Marketing, Journal of Business Ethics, Industrial Marketing Management, Journal of Business & Industrial Marketing, Electronic Commerce Research & Applications, International Marketing Review, Journal of Business & Psychology*, and *European Journal of Marketing*, among other journals. His research interests are focused on personal selling and sales management, business ethics, and internet marketing.

Venkatesh Shankar (PhD in Marketing, Northwestern University) is the Coleman Chair Professor of Marketing and Director of Research, Center for Retailing Studies, Mays Business School, Texas A&M University. His areas of specialization include digital business, artificial intelligence, marketing strategy, innovation, retailing, international marketing, and pricing. He is Co-editor of the *Handbook of Marketing Strategy* and Author of *Shopper Marketing*. He has published in the *Journal of Marketing Research, Management Science, Marketing Science, Journal of Marketing, Strategic Management Journal, Harvard Business Review, Strategic Management Review, Journal of Public Policy and Marketing*, and *Journal of Retailing*. He is Editor-Emeritus of the *Journal of Interactive Marketing*, Associate Editor of *Journal of Marketing Research*, and Area Editor of *Journal of Marketing*. He serves on the policy boards of *Journal of Retailing* and *Journal of Interactive Marketing* and on the editorial boards of *Marketing Science* and *Journal of the Academy of Marketing Science*. The Shankar-Spiegel Award is named in his honor.

Steven H. Seggie (PhD in Marketing, Michigan State University) is an Associate Professor of Marketing and Innovation at ESSEC Business School in Paris, France. Prior to working at ESSEC, he was the first faculty member at the startup Ozyegin University, where he helped to build the university from scratch. He is interested in open innovation governance, entrepreneurship, and the business of sport and has published in journals such as the *Journal of Marketing, Journal of Product Innovation Management*, and the *Journal of International Marketing*.

Emre Soyer (PhD in Economics, Finance & Management, Pompeu Fabra University) is a Behavioral Scientist and Entrepreneur, conducting research on experience, judgment, and decision-making. He is interested in creating tools and mechanisms that aid individuals in making better decisions and improve their learning. He has published in such journals and outlets as

Journal of Experimental Psychology: General, Cognitive Psychology, Journal of Experimental Psychology: Learning, Memory, and Cognition, Current Directions in Psychological Science, International Journal of Forecasting, Judgment and Decision Making, Harvard Business Review, and MIT Sloan Management Review.

This page intentionally left blank

EDITOR-IN-CHIEF INTRODUCTION

OVERVIEW

Review of Marketing Research, now in its sixteenth volume, is a publication covering the important areas of marketing research with a more comprehensive state-of-the-art orientation. The chapters in this publication review the literature in a particular area, offer a critical commentary, develop an innovative framework, and discuss future developments, as well as present specific empirical studies. The first 15 volumes have featured some of the top researchers and scholars in our discipline who have reviewed an array of important topics. The response to the first 15 volumes has been truly gratifying and we look forward to the impact of the sixteenth volume with great anticipation.

PUBLICATION MISSION

The purpose of this series is to provide current, comprehensive, state-of-the-art chapters in the review of marketing research. Wide-ranging paradigmatic or theoretical, or substantive agendas are appropriate for this publication. This includes a wide range of theoretical perspectives, paradigms, data (qualitative, survey, experimental, ethnographic, secondary, etc.), and topics related to the study and explanation of marketing-related phenomenon. We reflect an eclectic mixture of theory, data, and research methods that is indicative of a publication driven by important theoretical and substantive problems. We seek studies that make important theoretical, substantive, empirical, methodological, measurement, and modeling contributions. Any topic that fits under the broad area of “marketing research” is relevant. In short, our mission is to publish the best reviews in the discipline.

Thus, this publication bridges the gap left by current marketing research publications. Current marketing research publications such as the *Journal of Marketing Research* (USA), *International Journal of Marketing Research* (UK), and *International Journal of Research in Marketing* (Europe) publish academic chapters with a major constraint on the length. In contrast, *Review of Marketing Research* can publish much longer chapters that are not only theoretically rigorous but also more expository, with a focus on implementing new marketing research concepts and procedures. This also serves to distinguish this publication from the *Marketing Research* magazine published by the American Marketing Association (AMA).

Chapters in *Review of Marketing Research* should address the following issues:

- critically review the existing literature;
- summarize what we know about the subject – key findings;
- present the main theories and frameworks;
- review and give an exposition of key methodologies;
- identify the gaps in literature;
- present empirical studies (for empirical papers only);
- discuss emerging trends and issues;
- focus on international developments;
- suggest directions for future theory development and testing; and
- recommend guidelines for implementing new procedures and concepts.

A FOCUS ON SPECIAL ISSUES

In more recent years, *Review of Marketing Research* has a focus on special issues realizing that this is one of best ways to impact marketing scholarship in a specific area. The volume editors of all of the special issues have been top scholars. These special issues have focused on the following topics.

Volume, Year	Topic	Volume Editors
8, 2011	Marketing Legends	Naresh K. Malhotra
9, 2012	Toward a Better Understanding of the Role of Value in Markets and Marketing	Stephen L. Vargo and Robert F. Lusch
10, 2013	Regular Volume	Naresh K. Malhotra
11, 2014	Shopper Marketing and the Role of In-Store Marketing	Dhruv Grewal, Anne L. Roggeveen, and Jens Nordfält
12, 2015	Brand Meaning Management	Deborah J. Macinnis and C. Whan Park
13, 2016	Marketing in and for a Sustainable Society	Naresh K. Malhotra
14, 2017	Qualitative Consumer Research	Russell W. Belk
15, 2018	Innovation and Strategy	Rajjan Varadarajan and Satish Jayachandran
16, 2019	Marketing in a Digital World	Aric Rindfleisch and Alan J. Malter

CHAPTERS IN THIS VOLUME

This special issue focuses on marketing in a digital world. New digital tools and technologies have significantly changed marketing both from the demand and supply sides. These changes are seen in the types of products and services that marketers develop and how they price, promote, and distribute them, as well as in how consumers search for, evaluate, acquire, and consume products and

services. The chapters in this volume represent an eclectic mix of substantive issues and methodological approaches.

Kristen Lane and Sidney J. Levy give a historical review of the role and impact of information technology on human life and the marketplace. Then they examine the marketplace of the digital age in light of the metaphor of a “Moveable Feast.” They use a phenomena-driven approach to illustrate three important digital dyads involved in the “Moveable Feast” of information, communication, and connection. Information is a valuable resource that consumers exchange via communication and in building connections with others. There is a need for further research investigating information, communication, and connection between humans and digital machines.

Brian T. Ratchford reviews the literature on the influence of the Internet and other digital innovations on markets, firms, and consumers identifying areas in need of research: Big Data, online and mobile advertising, consumer search, online privacy, online reviews, social networks, platforms for online transactions, and the impact of the Internet on retail markets, including multi-channel and omni-channel retailing. His discussion of Big Data approaches and mobile advertising that have been applied to problems of targeting and positioning is insightful. The Internet has greatly lowered the costs of search and access to retailers for consumers. Ratchford contends that better models of competition among Google and other platform firms are needed, and that they should be examined for anti-trust violations. While online retailing has grown rapidly, it still has a relatively small share of retail sales. Since sellers can combine the advantages of online and offline channels, it has been common for sellers to branch into multi-channel retailing. Further research in to strategies for the various touchpoints that result in transactions is needed, given the increased availability of detailed consumer data and omni-channel sales.

Emre Soyer, Koen Pauwels, and Steven Seggie continue the emphasis on Big Data and propose a lean startup approach to data-based learning in marketing management. They focus on the marketing analytics component of Big Data and show how adaptations of the lean startup methodology can be used in some combination with such analytics to improve managerial decision-making. They also make a contribution by analyzing the various learning and decision problems that can emerge due to the four Vs of Big Data: volume, variety, velocity, and veracity. More research is needed in to mitigating the learning challenges of Big Data.

Charles F. Hofacker focuses attention on the unusual product attributes of software, and identifies areas in need of further research. Software is distinct from either tangible goods or intangible services in terms of production, operations, cost structure, or prescribed strategy. The nature of software changes as it gets more capable and by adding unique product characteristics of complexity, intelligence, autonomy, and agency.

Given the increasing importance of mobile marketing, Unnati Narang and Venkatesh Shankar’s review of two- or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device, platform, or technology is timely. The use of mobile devices has surpassed

desktops in digital media consumption, diffusion of wearable devices among customers, and inter-connectedness of devices, leading to the second phase or Mobile Marketing 2.0. In reviewing the literature, they focus on three key advances in mobile marketing research relating to mobile targeting, personalization, and mobile-led cross-channel effects. Mobile app monetization, augmented reality, data and privacy, wearable devices, driverless vehicles, the Internet of Things, and artificial intelligence (AI) are emerging trends in mobile marketing. They identify several research opportunities in these areas. The impact of mobile marketing on customer, firm, and societal outcomes deserves more attention from researchers.

While the positive influences of technological advances on consumers and businesses are well known, Utpal Dholakia contends that technology commonly produces unforeseen and unexpected negative effects on consumers. This results in Adverse Technology–Consumer Interactions or ATCIs. He issues a call for identifying ATCIs, investigating them, developing appropriate theoretical frameworks, and designing and testing solutions to alleviate their effects. His ideas are illustrated by considering two ATCIs: falling response rates to customer surveys and customer reactance to frequent price changes. Given the onslaught of technological developments in this age, further research on the negative and undesirable effects of ATCIs would have a mitigating effect and harness the potential benefits of new technology.

The importance of online reviews of products to customers and firms cannot be denied, yet they are vulnerable to unethical practices. Sergio Román, Isabel P. Riquelme, and Dawn Iacobucci introduce a new construct: Perceived Deception in Online Consumer Reviews (PDOCR). They review the relevant literature, build on the Elaboration Likelihood Model and Cognitive Dissonance Theory to create a theoretical framework of antecedents of PDOCR, its consequences, and moderators. They also report findings from a sample of in-depth interviews with real consumers about their thoughts on these phenomena and related constructs. Based on this framework and the qualitative data involving in-depth interviews with consumers, they derive several research questions that should give an impetus to future research on this important area.

Retailing thought and practice is premised on the assumption that consumers visit retailers to search for and acquire objects produced by manufacturers. In essence, we assume that the acts of consuming and producing are conducted by separate entities. This unspoken yet familiar premise shapes the questions retail scholars ask and the way retail practitioners think about their industry. Although this assumption accurately depicted retailing since the Industrial Revolution, its relevance is being challenged by a growing set of individuals who are equipped with new digital tools to engage in self-manufacturing.

Aric Rindfleisch, Alan J. Malter and Gregory J. Fisher examine self-manufacturing in the context of the recent rise of desktop 3D printing. They describe this new technology and review the literature, offering a conceptual classification of four distinct types of 3D printed objects. They use this classification for a content analysis of over 400 of these objects. They conclude with implications of self-manufacturing for retailing theory and practice. The

well-accepted paradigm assuming that products are made by firms, sold by retailers, and bought by consumers is, once again, changing. These authors do well in focusing our attention on self-manufacturing.

Together these chapters lead to new insights, approaches, and directions for research on marketing in a digital world. It is hoped that collectively the chapters in this volume will substantially aid our efforts to understand more about both strategy and innovation in the digital world and to provide a broader arsenal of research methods as well as fertile areas for future research. The *Review of Marketing Research* continues its mission of systematically analyzing and presenting accumulated knowledge in the field of marketing as well as influencing future research by identifying areas that merit the attention of researchers.

Naresh K. Malhotra
Editor-in-Chief

This page intentionally left blank

TRANSITIONING TO A DIGITAL WORLD

Alan J. Malter and Aric Rindfleisch

We live in a world that is increasingly digital, but not yet completely digital, which makes it quite interesting. The transition from the pre-digital age, just a few short years ago, to a new digital reality provides fertile ground for scholars to study a landscape that is shifting before our eyes (Lane & Levy, 2019). We are participant-observers in this great transformation, both recording changes as they occur while contributing to new waves of change. The next generation of not-yet-imagined digital technology and software applications will further transform markets, society, and everyday life (Hofacker, 2019).

This revolution has already impacted nearly every corner of modern life. Over the past two decades, digital technologies have profoundly altered marketing and consumption, and the change will continue in both expected and unexpected directions in the decades to come. Engineers and entrepreneurs, marketers, and ordinary consumers are constantly co-creating and updating the digital world, and their innovations are shared and adopted around the globe at unprecedented speed (Ratchford, 2019). These market disruptions not only offer excitement and opportunity but are also daunting and overwhelming to a great many consumers, companies, and institutions, struggling to keep up with the magnitude and pace of change (Dholakia, 2019).

In this chapter, we explore three main features of this new digital world. First, the digitalization of modern life has progressed so far and so fast that it is easy to overlook that we are still in the very early stages of this transformation. Second, the digital innovations that currently dominate consumer and commercial life in 2019 were largely unanticipated as recently as 1999. These innovations have come in rapid succession, rendering pre-digital life largely unrecognizable to the new generation of digital natives. With the benefit of 20 years of hindsight, it is now possible to see and appreciate just how rapid and

unexpected the digital transformation has been. Third, the sudden emergence and dominance of digital technology in so many domains, from work to home, has enthralled but also overwhelmed many consumers and companies and raises serious concerns about privacy and cybersecurity. The digital divide has also created great inequities between people of all ages who are digitally savvy vs. those with lower technical aptitude, lower access to technology, and increasingly unable to keep up. This divide significantly impacts education and employment prospects, access to healthcare and political participation, and the ability to cope with the new demands of everyday digital life (Gonzales, 2016).

DIGITALIZATION IN THE BLINK OF AN EYE

Although Kotler (1970) presciently predicted the role of the computer as a transformational technology long before the advent of the digital revolution, marketing scholarship on the digital age began to appear in the mid-1990s (Alba et al., 1997; Hoffman & Novak, 1996). For example, Hoffman and Novak (1996) contemplated the future of marketing in “computer-mediated environments” and proposed that consumers enter a flow state when surfing the web, even though the reality of accessing the early Internet on a desktop computer with a dial-up modem was still far from the “optimal experience” of psychological flow (Csikszentmihalyi & Csikszentmihalyi, 1988). Likewise, Alba et al. (1997) explored the potential of interactive home shopping, which was still quite novel at the time, as very few products were available online due to cross-channel competition concerns, logistical constraints, shipping costs, and uncertainty regarding the tax status of e-commerce. These early studies marked a new but peripheral niche in the field of marketing, and the consumption activities they investigated were still a very small part of everyday consumer experience.

In the 1990s, few could have anticipated the tsunami of disruptive new technologies that would be introduced within the two decades, or the degree to which these would transform our naive analog lives with digital innovations we did not know were possible, much less essential. Since then, a rapid succession of digital innovations has taken over the marketplace. Gupta (2018) traces the key stages of digital revolution from early e-commerce (Amazon) to superior information search (Google), then social media (Facebook) and mobile (Apple iPhone), and ultimately the emerging Internet of Things (IoT), connecting smart-home devices and appliances to each other and to the Internet. All of these developments have been enabled and accelerated by a host of technologies, such as the ubiquitous spread of Wi-Fi, GPS navigation (e.g., Garmin, OnStar, Google Maps), online consumer review and recommendation platforms, miniaturization of high-quality displays, and improved battery performance for mobile devices. These advances, in turn, have set the stage for still further digital innovation, from wearable tech (Fitbit) to customized online shopping experiences, from Netflix and streaming video on demand, playing on vastly improved televisions, laptops, and mobile devices running on ever-faster wireless networks, to consumers engaging in self-manufacturing via 3D printers, and even robotic personal assistants and

service providers. Many of these innovations now work seamlessly together, offering consumers an everyday digital experience that was pure science fiction a relatively short time ago (Ratchford, 2019). This transformation has been especially rapid in developing countries, which skipped earlier stages and fast-forwarded straight to digital.

Blindsided by Digital

The extent and speed of the digital takeover was largely unanticipated by marketing thought leaders two decades ago. To show how rapid and unexpected these changes have been, it is instructive to look back at the October 1999 special “Millennium” issue of the *Journal of Marketing (JM)*, co-sponsored by the Marketing Science Institute (MSI). The goal of this special issue was to take stock of the field of marketing at the end of the twentieth century and look forward to how marketing might change in the new millennium. This special issue coincided with the beginning of the great digital transformation that would soon follow. Remarkably, only a handful of the 17 articles that appeared in this special issue examined the expected impact of digital technology, and those that did mostly discussed it in the context of connecting organizations and markets, increasing competition, and the danger of driving down prices (from a firm’s perspective). Moreover, *none* of the chapters addressed how digital devices and tools might impact everyday consumer experience.

In a reflection essay in the *JM* special issue, Deshpande (1999) compared MSI’s top five research priorities (set biannually by MSI’s corporate members) over the decade prior to 2000 and concluded, “What is remarkable and interesting is not what has changed so dramatically but rather what has stayed the same” (p. 165). For example, in the mid-to-late 1990s, MSI consistently ranked “Marketing and the Internet” as only the third or fourth highest research priority among the top five, buried between important but standard topics such as measuring marketing performance, understanding customers, relationship marketing, and managing brands. A larger concern at the time was the perceived marginalization of the discipline of marketing due to its increasing focus on mundane tactics rather than on bigger-picture strategic issues (Day & Montgomery, 1999; Lehmann, 1997).

A few of the authors in this *JM* special issue sensed that marketing was on the brink of major change, they just did not know what specific form it would take or when exactly it would happen. For example, Day and Montgomery (1999) acknowledged the “connected knowledge economy” as the number one trend or disruption shaping the future direction of marketing. Specifically, they were referring to the emergence of knowledge-based industries such as software and telecom which are characterized by large up-front R&D costs, increasing returns, locked-in customers, and “winner-take-most” market dominance. More importantly, they foresaw that in a knowledge-based world, connection is key: “The consequences of connecting everyone through networks so information can flow more freely and frequently will be profound” (Day and Montgomery 1999, p. 7). In another article in this issue, Wilkie and Moore (1999) considered

what might happen to the marketing system if the Internet shifted consumer buying toward e-commerce, and correctly predicted that this shift would pose a challenge to physical retailing. Finally, [Achrol and Kotler \(1999\)](#) emphatically proclaimed that marketing was “poised for revolutionary changes” (p. 146) in the new network economy. Although they examined the role of marketing across various forms of future networks, they were especially prescient in describing an “opportunity network” that would be “organized around customers rather than suppliers” (p. 157). In effect, they described Amazon’s current business model (which they listed as an early example of this type of network, along with e-Trade, Travelocity, AOL, and Yahoo). They further noted that the growth of opportunity markets was limited at the time by uncertainty over consumers’ willingness to switch to online shopping, and correctly concluded that:

Opportunity networks integrated with customer communities represent the most dramatic scenario of change for marketing in the next millennium. If it should work out this way, the implications for marketing theory, research and practice are revolutionary [...] marketing will become a two-way activity. (p. 161)

In the two ensuing decades, digital innovations have indeed transformed the marketplace ([Narang & Shankar, 2019](#)) and this transformation has spawned a new generation of marketing scholarship about our digital age. Over these 20 years, hundreds of marketing publications have examined the impact of digital technologies on marketing and consumer behavior. Recently, several scholars have tried to organize this fragmented literature in order to make sense of the findings to date and better guide future research. For example, [Yadav and Pavlou \(2014\)](#) proposed an overarching framework based on 124 articles on marketing in computer-mediated environments. They identified four primary research categories: studies focused on consumer-to-firm (C2B) interactions, firm-to-consumer (B2C) interactions, consumer-to-consumer (peer-to-peer) interactions, and firm-to-firm (B2B, network) interactions. More recently, [Lamberton and Stephen \(2016\)](#) adopted a thematic approach to classify the literature in this domain, with a specific focus on digital, social media, and mobile (DSMM) marketing. They selected 180 articles published in top marketing journals from 2000 to 2016 to discern the shifting focus of DSMM research and its impact over this time period. Their analysis identified several different themes across each of four suberas: 2000–2004, early studies on how digital media shapes and facilitates buyer behavior; 2005–2010, studies on how consumers shape DSMM through word-of-mouth and networks; 2011–2014, the new age of social media; and 2015–2016 and onward, the rise of DSMM culture in a “postdigital” world.

Today, marketing scholars are focusing considerable attention on the implications of the latest digital technologies, including the emergence of artificial intelligence (AI) and robotics as replacements for human workers in the customer service domain ([Huang & Rust, 2018](#)), the rise of interconnected smart products in the IoT ([Hoffman & Novak, 2018](#); [Verhoef et al., 2017](#)), and consumer self-manufacturing via 3D printing technology ([Kietzmann, Pitt, & Berthon, 2015](#); [Rindfleisch, Malter, & Fisher, 2019](#)). Technology is now emerging as a central focus of new marketing theoretical frameworks (e.g., [Kumar,](#)

2018), and many leading academic journals have dedicated special issues to this topic. Wilkie and Moore (2003) surveyed the development of marketing thought over the previous century, starting with the founding of the field around 1900. They identified four distinct eras, but ended their review just as digitalization was starting to make an impact. We believe that the past two decades of research on marketing in a digital world mark the start of a new fifth era of marketing thought development.

The interdisciplinary field of marketing is well-positioned to lead research on the digital transformation of society in all its myriad aspects, from managers to consumers; examine its implications for market systems, public policy, and society; and develop new methods of marketing research from big data analytics to consumption assemblages. However, marketing faces stiff competition from more technical disciplines such as information systems, engineering, and computer science for the lead role in studying and teaching about the digital world. At a broader level, both traditional business schools and online start-ups like Coursera are racing to shape this new educational landscape, designing new curricula and introducing certification programs to train the digital leaders and managers of the future.

Coping with Digital

In addition to seeking to understand our new digital world, we are also trying to live in it. This is a challenging task, as the digital world increasingly looks and feels different from the analog world that has served as our historic foundation as humans on the planet Earth (Sax, 2016). Many current digital technologies are beyond the comprehension of ordinary consumers and are often hidden behind the scenes. Thus, in some ways, life (at the surface level) continues to look and feel much the same as before. Yet the growing influence of digitization is unmistakable, relentless, and increasingly apparent across a broad spectrum of activities, as new devices and tools quickly transition from novel to normal. Nearly every question that comes to mind can be immediately investigated online, and simple consumption activities like watching (or playing) sports are now accompanied by a blizzard of instant statistics, analyses, and on-demand video highlights that are new and different than before. Digital traces of nearly every activity are recorded, stored, and potentially analyzed by public and private entities, with or without consumer awareness or permission. Digital cameras are everywhere, and consumers themselves record and publicly post more data than can ever possibly be viewed or appreciated. Digital technologies are transforming education, commerce, transportation, healthcare, communication, entertainment, and general interpersonal interaction, from finding a mate (or just a date) to finding a job, finding any type of information, to reorienting family life and leisure time. Many consumers find these changes provide unparalleled convenience and view them as exciting and stimulating. The technology industry and studies by marketing scholars tend to focus on the early adopters of these new technologies and assume that everyone else will eventually catch up.

However, a growing number of consumers and workers are starting to feel exhausted from the constant effort needed to keep pace with the dizzying rate of change (Lane & Levy, 2019). In addition, many lack the technical skills or financial resources to upgrade, stay current, or even catch up (Gonzales, 2016). As a result, the emergence of the digital world has overwhelmed and frightened many consumers, companies, and policy-makers, who struggle to adapt to the new environment and lifestyle, or worry about privacy and cybersecurity concerns (Palmatier & Martin, 2019). Every new appliance and device is now a computer, from telephones to cars to TVs to refrigerators, and they no longer come with a printed manual because the manual is now online. On top of this, consumers are often expected to provide their own IT self-service. Simpler, older models are being phased out and service may no longer be available if consumers do not upgrade to the latest hardware and software, which only compounds the problem. Some key public services are now available only online. Even educated and relatively tech-savvy consumers find all the new technology daunting at times, while less educated (illiterate) and less tech-savvy (digitally illiterate) consumers are falling behind or completely unable to cope without assistance. This has resulted in a huge digital divide that needs to be addressed by marketing scholars and policy-makers (Gonzales, 2016; Wallendorf, 2001).

The stark differences between consumers willing to embrace new digital technologies and those who are not are highlighted in a recent Pew Research Center survey of 4,135 US adults on “Automation in Everyday Life” (Smith & Anderson, 2017). A majority of Americans report that they are more worried than enthusiastic about pending developments in automation, including AI and robots replacing humans to do a variety of jobs, algorithms that hire or evaluate employees, and self-driving cars. The two groups (enthusiastic versus worried consumers), hold nearly opposite views and attitudes toward these technologies. This sharp dichotomy may be due to the inherent paradox of new technologies that involve inseparable costs and benefits (Mick & Fournier, 1998). To date, marketing scholars (who are highly educated, financially privileged, and often tech-savvy themselves) have largely approached digital technologies from a perspective of enthusiasm (e.g., Lamberton & Stephen, 2016; Rindfleisch, O’Hern, & Sachdev, 2017; Verhoef et al., 2017). However, in recent years, widespread consumer fears of new digital technologies, especially legitimate concerns regarding safety, privacy, and truthfulness, are receiving increased attention from marketing scholars (Dholakia, 2019; Ratchford, 2019; Roman, Riquelme, & Iacobucci, 2019).

We encourage future research about this potential dark side of our digital age, which is likely to grow in importance as technology increasingly replaces humans with machines. Indeed, despite great initial fanfare, fears of self-driving vehicles and the popular “driver assist” and “autopilot” technologies available on many current model cars are rising and likely to gain increasing attention. Recent fatal crashes in 2018 involving an Uber test vehicle in Arizona (Lee, 2018) and a Tesla on autopilot in California (Stewart, 2018) damaged public perceptions of self-driving technologies, despite a lower accident rate than human-driven cars. According to the University of Michigan’s Mcity center on connected and automated vehicles (Dominic, Chhwari, Eustice, Ma, &

Weimerskirch, 2016; Weimerskirch & Dominic, 2018), connected self-driving cars are vulnerable to the same types of cyber threats that confront any computer network. These include data theft and denial of service attacks, as well as criminal hackers who might want to steal a car or its possessions, kidnap its occupants, or break into the smart home that may be connected to an autonomous car. As noted by Weimerskirch and Dominic (2018), “Cybersecurity is an overlooked area of research in the development of automated vehicles” (p. 1). Marketing scholars are equipped to add valuable insights that can help minimize these risks and attenuate consumer concerns about the darker side of the digital world.

Sensing this rising unease, marketers and advertisers have begun to take initial steps to address consumer fears of digital technology by offering more brick-and-mortar retail options and reassuring consumers that humans, not robots, are still in charge of providing customer service. For example, despite being a mega online retailer that has put many brick-and-mortar stores out of business, Amazon’s recent move into the food business via its purchase of Whole Foods supermarket chain has led them to open a new chain of brick-and-mortar convenience stores, Amazon Go (which lack cashiers but have in-person tech support). This addition of analog retail outlets seems likely to continue, as Amazon recently announced plans to launch a new chain of affordable physical grocery stores (Fung & Haddon, 2019). Similarly, the extensive brick-and-mortar chain of Apple stores serves not only as a retail showroom but also as a platform to provide vital in-person tech support to owners of Apple devices. In addition, many US advertisers are suddenly featuring robots in video ads (Poggi, 2019), often making fun of the robot for its lack of empathy (e.g., State Farm Insurance, Turbotax, Michelob) or portraying the robot as a helpful sidekick to a human service agent (Sprint telecom). Most notably, during the 2019 Super Bowl, Amazon ran a 90-second ad that cheekily highlighted potential limitations of its Alexa smart-home device.

Growing consumer unease with emerging digital technologies places firms in a dilemma. Today’s consumers demand superior customer service, expect a rapid response to every query or complaint, and want customized offers tailored to their personal interests. But in order to effectively and efficiently satisfy these expectations, firms must naturally turn to new technologies such as AI, at least behind the scenes. Thus, part of the problem is consumer misperception of digital technologies, as many consumers already enjoy the benefits of AI but are not aware of the positive role that this technology plays.

Therefore, the potential impact (both good and bad) of increasing consumer awareness and engagement with new digital technologies such as AI is an important issue for both marketing scholars and practitioners. Some of this work has already begun. For example, in an early study of consumer acceptance of electronic commerce, Pavlou (2003) integrated trust and risk in the “Technology Acceptance Model” to better understand how to engage consumers in online transactions. More recently, Hingston and Noseworthy (2018) studied how marketers can overcome consumers’ moral opposition to genetically modified foods by positioning these products as more attractive on other dimensions. Similar

approaches could be used to increase consumer acceptance or decrease consumer resistance to new digital technologies.

Despite these concerns, the transition to a more digital world will surely continue in the coming decade, as firms further integrate digital technologies in every aspect of their products and operations, and consumers and workers gain a higher comfort level with new digital technologies and tools. Nevertheless, we expect that in the near future many aspects of the current analog world will continue to persist, and coexist with digital technology. As the digital transformation further evolves, the marketplace will likely reach some sort of digital–analog equilibrium that combines the benefits of digital technologies with reassuring vestiges of our analog past. An early example of this is an augmented reality application such as *Pokemon Go*. Over time, this balance will likely shift further toward the digital, as an increasing number of consumers gain comfort in the digital world and as their understanding and skill sets become better matched to this ever-changing environment.

Marketing in a Digital World

As we enter the 2020s, the transition to the digital age is well underway but far from complete (Rindfleisch et al., 2017). The disruption of markets and reshaping of everyday life is still very much a work in progress, and its final shape is far from clear. As marketing scholars, practitioners, and consumers, we are fortunate to be experiencing and participating in such an epochal transition from the pre-digital to digital age. It is a challenging but exciting time to be a consumer and marketer, a student and professor, or an entrepreneur and investor. Policy-makers, educators, and other stakeholders are perpetually trying to keep up with the pace of change.

Evidence of the rapid transition to the digital age is apparent to anyone interacting with millennials today, who are mostly too young to remember the pre-digital age. They tend to roll their eyes and simply cannot believe stories of the “old days” of the 1990s, before mobile phones (much less smart ones), digital cameras, email, the Internet, e-commerce, or social media. Since so many aspects of life are now online, it is hard for digital natives to imagine how the previous generation managed to do anything without today’s digital technology!

As we further transition to a digital world, the road will be bumpy and never completely finished. Soon after its launch in 1998, the new *Journal of Interactive Marketing* boldly declared, “All marketing is, or soon will be, interactive marketing” (Glazer, 1999, p. 3). That declaration was at the time, and still is, premature. Many analog technologies, and even preference for them, are still common and surprisingly resilient (Sax, 2016). This is especially true in certain consumer segments, industries, and countries. Thus, the process of transitioning to a digital world, the stubborn persistence of analog usage, and the coexistence of digital and analog technologies will continue to be important subjects to study for the foreseeable future.

Future research would be especially valuable in identifying which of our current theories and concepts of human behavior are general and enduring enough