

Chapter 1

The History of Marketing Science: Beginnings

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1.1 Introduction

The field of marketing science has a rich history of modeling marketing phenomena using the disciplines of economics, statistics, operations research, and other related fields. Since it is roughly 50 years from its origins, we feel that it is timely to review the accomplishments of marketing scientists in a number of research areas.

This history has not gone previously unnoticed. A number of fascinating retrospective articles about the origins of the field of marketing science authored by some of its pioneers appeared in a special section of the Fall 2001 issue of *Marketing Science*. An article by Steckel and Brody (2001) highlighted the importance of understanding the history of any field. They noted three reasons: (1) understanding our history is just simply interesting as would be finding our genealogical roots, (2) history helps us to better understand how a field evolves and why it is where it is now, and (3) history also aids our predictions of where a field is headed.

An excellent example of the first reason is to wonder at the evolution of the kind of data that have become available to researchers. If you were modeling consumer choice behavior in the 1960s and 1970s, you were pretty much limited to a few diary panel datasets. This evolved to the now-famous IRI scanner panel coffee data in the 1980s and 1990s. In the 21st century, we have almost unlimited data from comScore on e-commerce choice behavior. Similarly, advertising effects research has moved from a few publicly available datasets on cigarettes and the Lydia Pinkham Company's

“vegetable compound” to multi-channel advertising data including online and mobile advertising exposure.

In this introductory chapter to the book, we provide a brief summary of the history of the field. An excellent historical overview of the field by David Montgomery can be found in the Fall 2001 Special Section of *Marketing Science*. Here, we update and broaden Montgomery’s review. In addition, the chapter also acts as a foreword to the book by providing our goals and dedications.

1.2 The origins of marketing science

The earliest contributions to what we today call marketing science came from outside the field, usually from faculty trained in operations research/management science and residing in engineering departments, not business schools. Some of the papers were published in marketing journals such as the *Journal of Marketing*. An example is “Application of Operations Research to Marketing and Related Management Problems” (Magee, 1954), but most were published in journals like *Operations Research* or *Management Science* (see, for example, Anshen, 1956; Brown, Hulswitt, and Kettelle, 1956; Vidale and Wolfe, 1957).

There is general agreement that a Ford Foundation report written in 1959 by UC Berkeley economist Robert Gordon and Stanford professor James Howell sharply critical of American business education provided the catalyst for bringing a more rigorous approach to research in marketing conducted by faculty in business schools. This report, *Higher Education for Business*, coincided with a Ford Foundation-supported entity called the Institute of Basic Mathematics for Application to Business that was jointly run by the Harvard Business School and MIT’s then-named School of Industrial Management. Ford provided fellowships for interested business school faculty to take one-year sabbaticals to improve their skills in quantitative analysis and the social sciences. The goal of these programs was to “raise teachers’ and students’ receptivity for quantitative methods to such a point that these methods will be incorporated, wherever appropriate, into the teaching of production, marketing, accounting, finance, and other recognized areas of business” (Carroll, 1958).

Fortunately for the field of marketing, five of the attendees who took advantage of the Institute were Frank Bass (Purdue), Edgar Pessemier

(Purdue), Robert Buzzell (Harvard), Ronald Frank (Chicago), and Philip Kotler (Northwestern). These founding “fathers” were complemented by a number of other prominent early marketing scientists including John Little (MIT), Paul Green (Wharton), Alfred Kuehn (CMU), William Massy (CMU, Stanford), Al Silk (Northwestern, Chicago), Glen Urban (MIT), David Montgomery (MIT, Stanford), Don Morrison (Columbia), and John Farley (Chicago, CMU). While this group produced many seminal contributions to the field, important contributions were also made by marketing science textbooks that were influential in doctoral programs. These included *Mathematical Models and Methods in Marketing* by Bass *et al.* (1961), *Mathematical Models and Marketing Management* by Buzzell (1964), *Quantitative Techniques in Marketing Analysis* by Frank, Kuehn, and Massy (1962), *Marketing Models: Quantitative Applications* by Day and Parsons (1970), *Management Science in Marketing* by Montgomery and Urban (1969), *Stochastic Models of Buyer Behavior* by Massy, Montgomery, and Morrison (1970), and *Marketing Decision Making* by Kotler (1971). Fortunately, most of these highly influential scholars are still alive and providing valuable counsel to their younger colleagues.

Key topics of the day included the following:

- Bayesian decision theory
- Multivariate analyses, e.g., factor, cluster, etc.
- Markov brand switching and learning models
- Probability models of brand choice
- Simultaneous-equation regressions
- Latent structure modeling
- Linear programming in media selection
- Dynamic programming.

1.3 The Marketing Science Institute

Soon after the release of the Ford Foundation report in 1962, the Marketing Science Institute (MSI) was founded in Philadelphia by Thomas McCabe Sr., the former President of Scott Paper Company, with the assistance of Professors Wroe Alderson (Wharton), John Howard (Columbia),

and Albert Wesley Frey (Pittsburgh). The original goals of MSI were stated by McCabe (Wind, 2011):

Our progress in the science of marketing in my opinion has not kept pace with our evolution in the physical sciences . . . we lack the knowledge necessary to meet the sales challenges that face us . . . the time has never been more appropriate, the need never greater for the establishment of an independent institute to accelerate the rate at which scientific techniques are being applied to marketing activities.

Twenty-nine companies signed up for five-year charter memberships.

Although not stated explicitly, from the beginning, MSI's objective was to bridge the gap between academia and practice while maintaining rigor and relevance in research. Some titles of monographs produced in the 1960s demonstrate that MSI was successful in achieving its goals:

- *Promotional Decisions Using Mathematical Models* by Kuehn and Rohloff.
- *Experiments on the Value of Information in Simulated Marketing Environments* by Fitzroy, Green, and Robinson.
- *Advertising Measurement and Decision Making* by Robinson, Dalbey, Gross, and Wind.
- *Promotional Decision Making: Practice and Theory*, by Robinson and Luck.

It should be noted that the definition of “scientific techniques” included rigorous experimental work based on theories from psychology, and was not limited to mathematical models.

In 1968, MSI moved from Philadelphia to Cambridge and established a formal relationship with Harvard Business School. Its publication emphasis shifted from monographs to working papers and to the funding of projects in areas that needed new research perspectives. Examples of these projects included work on market segmentation (James Taylor), product life cycles (Victor Cook), new product development (Pessemier), market definition (George Day and Allan Shocker), and the well-known PIMS (Profit Impact of Marketing Strategy) project (Buzzell) Figure 1.1.

1959 – Ford Foundation report, <i>Higher Education for Business</i>
1961 – Marketing Science Institute founded
1964 – First issue of the <i>Journal of Marketing Research</i>
1966 – Purdue University: Applications of the Sciences on Marketing Management
1967 – TIMS College of Marketing formed
1968 – AMA Summer Educators Conference Workshop “Management Science in Marketing”
1969 – Departmental Editor in Marketing for Management Science
1978 – Stanford “Marketing Measurement and Analysis” conference
1982 – First issue of <i>Marketing Science</i>
2002 – INFORMS Society for Marketing Science (ISMS) founded

Fig. 1.1 Timeline of important events in the history of marketing science

A major shift in its approach to supporting academic research was initiated in the mid-1970s when MSI instituted a bi-annual research priorities program to focus its support for academic research toward marketing problems that trustees from its member companies indicated were of current importance. The first five priorities developed by the then Executive Director, Stephen Greyser, were Marketing Management (e.g., market structure), Marketing and Economics (e.g., study of advertising/promotion elasticities), Marketing Models and Methods (e.g., new methods for measuring effectiveness of TV commercials), Communications and Consumer Behavior (e.g., prediction of consumer purchase behavior), and Distribution (e.g., current developments in electronic point-of-sale terminals and retail inventory controls).

MSI has had an enormous impact on both the marketing science and consumer behavior communities (Low, 2011). As can be seen from the data in Figure 1.2, a published article receiving prior MSI support has about 75% more citations than the average non-MSI-supported article. Areas that MSI has been particularly successful in supporting have been services, channels, strategy, and pricing. In addition, a time-series analysis of the impact of the research priorities shows a significant lagged impact of the priorities on

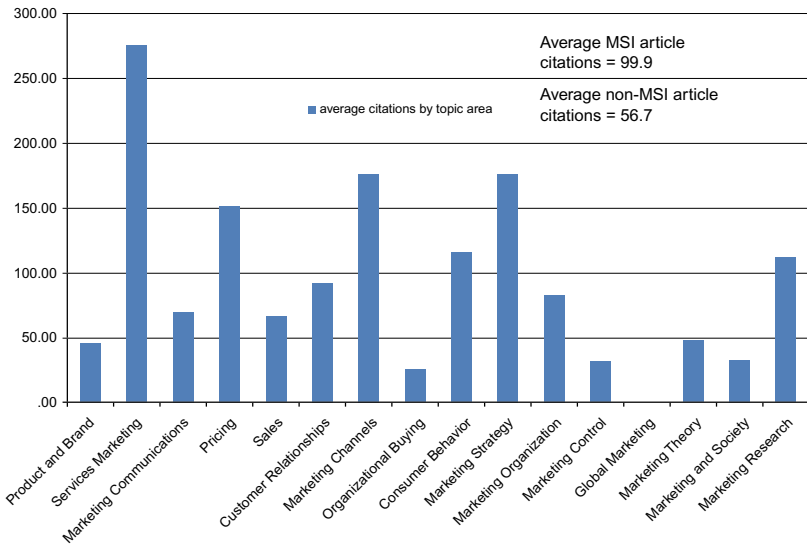


Fig. 1.2 Citation data from MSI-sponsored research

Source: George Low (2011).

MSI working papers and, importantly, publications based on those working papers.

1.4 The TIMS Marketing College¹

The TIMS Marketing College was founded in 1967 as the professional organization for academicians and practitioners interested in the “application of scientific methods to marketing problems” (Montgomery, 1967). The founding of the “TIMS College” was the confluence of three forces: (1) growth in the number of marketing articles appearing in *Management Science*, which was published by The Institute for Management Science (TIMS); (2) growth in the intellectual capital of the field, represented not only by articles but also by significant

¹This section on the TIMS College draws heavily on the series of articles referred to earlier in the Fall 2001 issue of *Marketing Science*. These include articles by Bass (2001), Little (2001), Montgomery (2001), Morrison (2001), and Wittink (2001). We also thank David Montgomery for information provided by personal communications.

books such as those mentioned earlier; (3) the budding link between academia and industry in the development of scientific methods for marketing.

The link between academia and industry was fundamental and pervasive. For example, Buzzell's book documents the application of linear programming to media selection, the measurement of advertising effects, and cases representing industry practice. As noted above, MSI had been founded to bridge industry and practice. Senior academicians entering the field had a distinct managerial orientation; *implementation* was of high priority. It was no wonder that the 1968 census of the TIMS College membership identified 71 members from industry among the total of 148 members.

While the ingredients for a professional organization of academicians *and* practitioners were present, it took human effort to mix the ingredients together. David Montgomery, then a junior faculty member at MIT, was a key contributor, encouraged by John Little. Paul Green, George Haines, James Heskett, John Little, William Massy, Al Silk, Martin Starr, Leonard Simon, as well as David Montgomery comprised the Planning Board for launching the TIMS College. Numerous others provided encouragement, time, and effort. The culture of "stepping up", which to this day characterizes the INFORMS Society for Marketing Science (ISMS) membership, was firmly rooted in this formative period.

The TIMS College undertook several initial activities, perhaps the most important of which was the organization of the marketing track of sessions at the TIMS meetings. The TIMS College also published a newsletter to keep its members informed.

As the years progressed, so did the field. During the period 1966–1972, the number of marketing articles in *Management Science* increased from 5 to 10 in the previous seven-year periods to 37. Included among these papers were the now classic "A New Product Growth Model of Consumer Durables" (Bass, 1969), and "Models and Managers: the Concept of a Decision Calculus" (Little, 1970). These and other articles published in this era clearly were scientific and simultaneously linked to practice. The culmination of this was the 1971 Special Issue of *Management Science* which included nine marketing papers, several of which focused on sales force management.

The stage was now set for the two seminal contributions of the TIMS Marketing College: the annual Marketing Science conference, and the founding of the *Journal Marketing Science*.

The first Marketing Science conference was held in the spring of 1979 at Stanford, with David Montgomery and Dick Wittink serving as chairs. The conference was titled, “Marketing Measurement and Analysis” (there was perhaps hesitation that some might perceive “Marketing Science” as an oxymoron).² The conference drew 120 attendees, with 11 of the 40 papers authored by practitioners, and several practitioner panels. The conference was a huge success in the quality of the work presented and in the “buzz” it created. Hosts quickly lined up for follow-ups, and included UT Austin, NYU, Wharton, USC, and Chicago. The conference was formally titled “The Marketing Science Conference” in 1983 when it was hosted at USC. Attendance soon increased to the 300s–400s.

As the field grew, it became apparent to the TIMS college leaders that the supply of good work was exceeding capacity of *Management Science* as well as *Operations Research* and *JMR*, which also published marketing science papers. Frank Bass and John Little asked Donald G. Morrison to chair a committee for investigating the feasibility of a new journal. Working during 1979, the committee concluded that a new journal was warranted, to be entitled *Marketing Science*. Donald Morrison was appointed Editor, with Seenu Srinivasan, Subrata Sen, and Jerry Wind as area editors. In Morrison’s words, “we wish to publish high-quality quantitatively oriented papers in the areas of marketing models, measurement, theory, and applications.”³ Submissions started arriving in late 1980, and the first issue was published in 1982. The lead article was “NEWS: A Decision Oriented Model for Product Analysis and Forecasting,” by Lew Pringle, Dale Wilson, and Ed Brody. The next two articles were “A Marketing Decision Support System for Retailers,” by Len Lodish, and “Maximum Likelihood Estimation for an Innovation Diffusion Model of New Product Acceptance,” by Dave Schmittlein and Vijay Mahajan. The marriage of science and practice was clearly evident in these articles.

²See Wittink’s article in the Fall 2001 issue of *Marketing Science*.

³“Launching Marketing Science,” Donald G. Morrison, Preface to the inaugural issue of *Marketing Science*, 1982.

An important institutional development along the way was the merger of TIMS and ORSA (Operations Research Society of America). While the TIMS College was obviously a part of TIMS, ORSA also sponsored a quantitative journal — *Operations Research* — that had a long history of publishing marketing articles and overlapped with TIMS in other subject areas as well. During 1970–1990, the two organizations began to sponsor joint meetings (the ORSA/TIMS conference) as well as joint journals (*Marketing Science* was in fact co-published by TIMS and ORSA). Eventually, two governing bodies became burdensome and redundant. ORSA and TIMS merged in 1995; the new organization was called “The Institute for Operations Research and Management Science”: INFORMS. The TIMS Marketing College was now the INFORMS College on Marketing.

1.5 The INFORMS society for marketing science

January 25, 2002, marked a seminal event in the creation of ISMS as we know it today. Joel Steckel, then President of the TIMS College, convened a meeting of the College’s officers and others, including Ed Brody, Naveen Donthu, Scott Fay, Jim Hess, Barbara Kahn, Gary Lilien, John Little, Peter Popkowski Leszczyc, Jagmohan Raju, Steve Shugan, and Bart Weitz. Among the topics discussed was the need to elevate from an INFORMS college to an INFORMS society.⁴ INFORMS societies are the flagships of the INFORMS communities: “The societies are significantly larger than the sections, chapters, or fora, and focus on a common theme.”⁵

The group saw four advantages from moving to society status: (1) a seat on the INFORMS council, so that the interests of marketing science could be more directly represented, (2) prestige, which would translate to higher membership and more weight to the respect for awards, *Marketing Science*, and other activities, (3) a stimulus for expanding the college’s infrastructure so as to link more directly to members’ needs and the organization’s activities, and (4) by expanding the infrastructure, providing more opportunities for more people to get involved with governance. The infrastructure was important. At the time, the College governance consisted

⁴We thank Joel Steckel for providing the minutes from this meeting.

⁵<https://www.informs.org/Participate-In-a-Community/Societies-and-Sections>.

of six officials: President, President-Elect, Secretary/Treasurer, Conference Coordinator, Past President, and Newsletter Editor. The new ISMS board would consist of 11 officials: President, President-Elect, Past-President, Secretary, Treasurer, Newsletter Editor, and Vice Presidents of Electronic Communication, Meetings, Practice, Education, and Membership. Another VP position — External Relations — would be added later. In addition, the President would appoint up to three Advisory Board members, non-voting but important voices to be heard at board meetings.

INFORMS approved the College's application for society status in 2002, and John Hauser announced the formation of the ISMS at the 2002 Marketing Science conference hosted by the University of Alberta. Joel Steckel was the first President of ISMS, to be followed by Jagmohan Raju, Tülin Erdem, Rick Staelin, Scott Neslin, Kannan Srinivasan, and now John Hauser. The mission of ISMS is stated in its by-laws, to "foster the development, dissemination, and implementation of knowledge, basic and applied research, and science and technologies that improve the understanding and practice of marketing."⁶ One sees the mix of science and application that are the roots of the organization.

ISMS built upon its predecessor and expanded its activities. The major ones include the following:

- *Marketing Science Conference*: ISMS continues to sponsor the conference, which topped 900 in attendance at the 2012 conference hosted by Boston University. The 2013 conference in Istanbul topped 600.
- *Doctoral Consortium*: ISMS continues to sponsor this gathering of 90–100 PhD students, held the day before the beginning of the Marketing Science Conference.
- *Doctoral Dissertation Proposal Competition*: ISMS recognizes up to five dissertation proposals annually as the best dissertation proposals on important marketing issues. Each award carries with it \$5,000 in support. One of the awards is funded by the Vithala R. and Saroj V. Rao Endowment. Another has recently been supported by the Sheth Foundation.

⁶<https://www.informs.org/Community/ISMS/Archived-Documents/By-Laws>.

- *Practice Prize Competition*: ISMS sponsors a competition to recognize “outstanding implementation of marketing science concepts and methods.”⁷
- *Journal Support*: Originally, the TIMS College, and subsequently ISMS, provided financial support for the journal *Marketing Science*. Once *Marketing Science* became self-sustaining, this support was no longer needed. However, ISMS occasionally supports special efforts such as the *Management Science* special issue, “Marketing within the Enterprise and Beyond” (2011), and provided funding for *Journal of Marketing Research* to temporarily expand its capacity to expedite the publication of accepted papers.⁸

The above activities clearly map the development, dissemination, and implementation of marketing science. In addition, ISMS reinforces the work that best exemplifies this mission through the following awards:

- *John D.C. Little Award* for the best marketing paper published in *Marketing Science* or *Management Science*.
- *Frank M. Bass Dissertation Award* for the best marketing paper derived from a PhD thesis.
- *Gary L. Lilien ISMS-MSI Practice Prize* for the winner of the Practice Prize competition.
- *Fellow Award* recognizes cumulative individuals’ long-term contributions to the mission of ISMS.
- *Long Term Impact Award* to a marketing paper published in *Marketing Science*, *Management Science*, or another INFORMS journal, which is viewed to have made a significant long-run impact on the field of Marketing.
- *Dissertation Proposal Award* to the winners of the Dissertation Proposal Competition.
- *Buck Weaver Award* for lifetime contribution to theory and practice in the development of rigor and relevance in marketing science.

⁷Lilien, G. L. (2004). The inaugural ISMS practice prize competition, *Management Science*, 23(2), Spring, 180–191.

⁸Erdem, T. State of the journal, *Journal of Marketing Research*, 47(6), 997.

1.6 Looking ahead

ISMS now serves as the organizational face of the growing field of marketing science. The evidence is that this growth has indeed been abetted by the efforts of ISMS and its predecessor, the TIMS College. Several challenges remain. Two big ones are encouraging international growth and fostering interdisciplinary research. The Marketing Science Conference is currently held in a non-North American site every third year. This certainly draws new people to the field. However, there may be more ISMS can do such as tutorials, doctoral student mentoring, and encouraging work on emerging markets. Marketing science readily draws on economics, psychology, statistics, stochastic processes, and optimization. These comprise marketing science's discipline base. As marketing becomes more intertwined with other business functions — operations, finance, R&D, etc. — marketing science needs to collaborate with these areas as well.

Another challenge is to re-engage our roots in science *and* practice. Some believe that marketing science research, at least the published academic research, has lost the intimate relationship with practice that defined the field in the 1960s. In contrast to the early days of the TIMS College, ISMS clearly is now dominated by academicians. The question is complex. Today's data and modeling capabilities lend themselves to more academic-leaning work. However, these same data and capabilities are being applied by businesses such as Google and any number of consulting firms. The potential for collaboration would apparently be greater than ever. However, due to intellectual capital concerns, businesses may be reluctant to join with academicians in an official capacity. Academicians may be quite content with focusing more on the science and implement the science through consulting and teaching. However, *implementation* is part of the ISMS mission and ultimately ISMS must ask itself whether it is fulfilling that mission.

1.7 This book

We have three goals for this book:

- (1) Provide a road map for the development of 16 areas of marketing science, which not only is useful from a historical perspective but also

identifies the important gaps in the literature, which can provide an impetus for future research.

- (2) Provide a resource for the main consumers of the academic marketing research literature: doctoral students, faculty, and marketing science practitioners in consulting firms and companies.
- (3) Emphasize both the role and the importance that pioneers in marketing science have had in the rapid development of the field over the past approximately 50 years. This book honors those contributions.

In order to achieve these goals, the chapters share several characteristics. First, they are not intended to be reviews of the literature in the specific area. Instead, authors were instructed to select the most important research that advanced the area at different points in time. As a result, the literature references are selective and not comprehensive. Second, each chapter has a graphic with a timeline for the key developments in the area covered by the chapter or, in some cases, by sub-area. This “genealogical” chart is a key part of each chapter and an important takeaway and summary. Third, each chapter is intended to be brief and largely qualitative with relatively few equations. While this is in stark contrast to articles in *Marketing Science*, the *Journal of Marketing Research*, and other journals publishing marketing science papers, our objective was to make it highly readable and easy to digest and thus reach as many people as possible, including those readers with backgrounds outside of economics, statistics, operations research, etc. We hope we have created a book that has achieved these goals and gives marketing scientists and other interested readers a good sense of the development of the field and its main contributors.

We would like to acknowledge a number of people. First, we are greatly appreciative of our publishers and, in particular, Zac Rolnik whose enthusiasm for the project created a tremendous amount of momentum for it. Second, we thank the authors of the chapters for responding amicably to our cajoling and comments on the chapters. They responded quickly to our comments and worked hard to improve their chapters. We particularly appreciate a number of people who pitched in either as authors or co-authors at late dates to rescue some of the chapters.

Finally, this book honors those early colleagues who took a field that had been subject to disdain in the 1950s to one that has sponsored a highly successful journal, holds an annual conference that attracts nearly

1,000 participants from around the world, and has gained the respect of many colleagues in the disciplines upon which marketing science is built. Most of them are mentioned either in this chapter or in another chapter. This book is dedicated to them.

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