



### Expert Contributors

## MEMS Commercialization Report Card – Part 6: Marketing (Part 1)

By Roger H. Grace

### Introduction

This is the sixth episode in a series of articles addressing the 2018 MEMS Commercialization Report Card. This episode will be the first of a two-part, successive episode on the topic of marketing. Previous episodes in this publication addressed:

- [Episode 1...Introduction](#)
- [Episode 2...Technology Clusters](#)

- **Episode 3...Infrastructure**
- **Episode 4...Design for Manufacturing and Test/Part 1**
- **Episode 5... Design for Manufacturing and Test/Part 2**

Marketing is one of the 14 critical success factors in the commercialization of MEMS as well as virtually for all products. “Marketing is Everything” <sup>(1)</sup> is the title of the Harvard Business Review article authored by Silicon Valley marketing luminary Regis McKenna. While I do not totally agree with him on the title, I believe that many of its tenants proposed within the article are as applicable today as they were written approximately 20 years ago. From my 35 plus years as a sensors and MEMS marketing consultant, I can emphatically state that I have frequently experienced my clients’ successes resulting from their embracing marketing as a critical element of their business strategies.

This article addresses the grade and rationale for what marketing achieved as a result of the market study I conducted to realize the 2018 Report Card. The Report Card is the result of an annual market research activity that I have published since its inception in 1998.

This episode provides a brief introduction to marketing, the Report Card market research process, and several verbatims from its respondents. Part 2, Episode 7, will provide valuable insights contributed by the several MEMS and sensors industry pundits who were interviewed in-depth to provide opinions and rationale for the grades they submitted.

#### Market Research Process Summary

For those who have not had the opportunity to read Episode 1 where details of the market research process underlying the establishment of the grades was presented, the following is a brief summary to help the reader better understand the process and have a comprehensive appreciation of the results:

- **Step 1: Questionnaires were sent via email to approximately 100 MEMS experts in the Roger Grace Associates data base requesting them to provide grades to the 14 critical success factors, a.k.a., topics for the Report Card. They were asked to provide verbatim comments on the rationale for the grade levels they provided.**
- **Step 2: The letter grades from A to F, inputs of approximately 35 respondents and verbatims were tabulated.**
- **Step 3: In-depth interviews were conducted with several of the respondents I considered being on the top of the list of MEMS marketing experts.**

#### Grade Analysis

Figure 1 provides the Report Card grades for the topic of marketing beginning in 1988. The 2018 grade was B, which it has achieved and maintained since 2015. Historically, marketing grades have been in the C- region, never going above its current B grade.

This would prompt one to ask, why have the grades been lackluster for so long and recently and gradually beginning to improve? I believe that only until recently, with the maturity of MEMS as discussed in Episode 2 and with many MEMS products’ recent higher degree of

commoditization, and the urgent need for perceived product differentiation, MEMS has not received the human and financial capital support necessary for their success. As the competition gets more rigorous, the need for marketing becomes more critical for product success.



**Fig. 1: Figure 1: MEMS marketing received less than favorable grades in the past. The good news is that it has improved slowly from its historical C levels to a B for the past four years. The need to optimally differentiate MEMS products by suppliers has driven increased adoption of marketing to win market share. This is especially true of suppliers who support the consumer electronics markets where many products have become commoditized. Standard deviation was 1.15.**

Marketing Defined

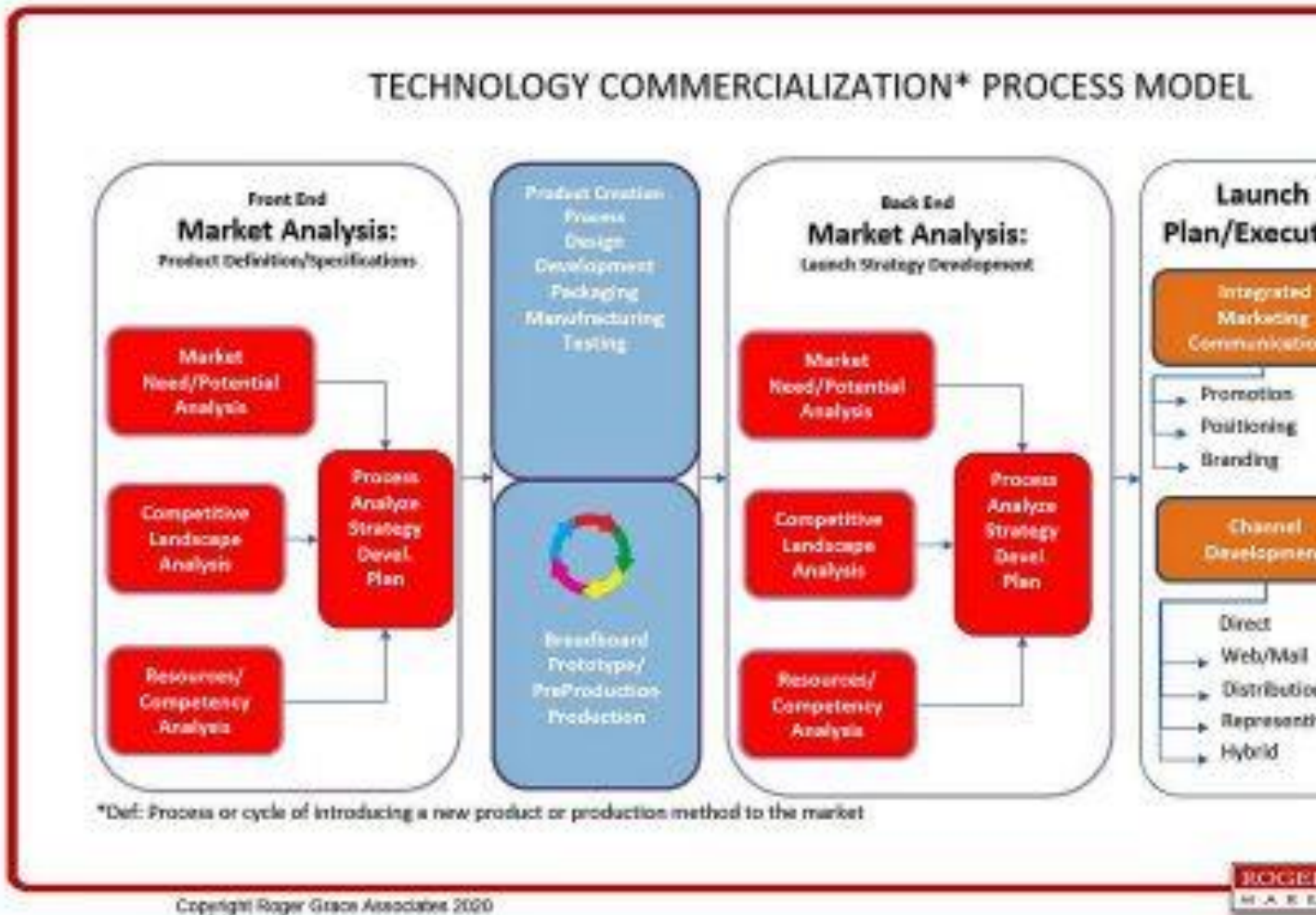
**The American Marketing Association defines marketing as, “the activity, set of instructions, and processes for creating, communicating, delivering, and exchanging offerings that have value customers, clients, partners, and society at large.”**

### **Situational Analysis**

**In 35+ years as an independent technology marketing consultant, I’ve worked with scores of clients, most of them working in the MEMS and sensors sector. They engaged my consulting services to increase their success in the market, to either successfully accelerate their existing products into the market or launch new products or companies. However, there are many other organizations who fall into the category of “unconscious incompetents”, a phase that my colleague, Professor Steve Walsh of the University of New Mexico, uses to describe individuals and organizations that do not accept the fact they do not know that they need marketing to help achieve their business goals. Next in the series, Episode 7, will be an attempt by the author to bring to light some of the basic tools that are available to MEMS and sensor suppliers to help the “unconscious incompetents” as well as the more enlightened others to assist them to better market their wares and thus maximize their chances to attain success.**

### **The Role of Marketing In The Successful Commercialization Process**

**My 2012 article on the MEMS commercialization process <sup>[2]</sup> provides a process flow which is shown in figure 2.**



**Fig. 2: The MEMS and sensors commercialization process begins and ends with marketing functions. Market research on the front end and promotion on the back end. Without the results of a well-planned and executed thorough market research process, the elements of the marketing program cannot be effectively planned and executed.**

In the front end of this process, market research is a key factor to help better understand:

- Unfulfilled market needs
- Define the competitive landscape
- Define the core competencies of the organization

Without a thorough understanding of these issues, an organization's marketing strategy is more likely to be a failure than a success. This is especially true when launching a new company and/or a new product<sup>[3][4]</sup>. Please keep in mind that we are assuming that the product is viable, the market exists, the funding adequate, and the team qualified. In the back end of the process, it is critical to be able to plan and execute a program of promotion of the product and the development of the proper sales-and-distribution channels to deliver the product into the hands of the customer.

The market research activities conducted in the front end of the process can be quite valuable in providing inputs in the developing and sustaining of several marketing principles that come to play in the back end of the process. We will discuss market research in detail as part of the Report Card topics in a future episode.

Key marketing principles include:

- **Positioning:** the place that a product/service/organization occupies in a consumer's mind that relates to competing products/services/organizations in the marketplace
- **Branding:** the marketing practice of creating a name, symbol or design that identifies and differentiates a product/service/organization from other products/services/organizations.
- **Promoting:** the product/service to the target audience(s) as well as better understanding the pros and cons of the various sales/distribution channels available.

Discussion

To better understand and present the problem, I've elected to use several of the responses from recent Report Card market studies to best demonstrate current MEMS marketing issues. The following are a selection of recent Report Card verbatim responses to better provide you with an industry voice, not just the author's perspectives and opinions on these topics:

- Thanks to smart phones, users are aware of MEMS
- MEMS itself is not marketed, but rather the individual MEMS-based products, as the markets have matured beyond a technology sell.
- Many companies lack visionary marketing, and as a result just follow the latest trends. As a result, there are a lot of similar products.
- Marketing will always be difficult since the application of the technology spans so many traditional markets.
- Still too much "herd mentality", especially in the consumer segment.
- Marketing resources are available in the industry. Not sure that companies developing unique solutions know how to approach unique marketing requirements.
- Marketing? I don't see any MEMS marketing. This truly summarizes my opinions on the subject.

Based on my experience, I believe that marketing efforts by organizations to support the sales of sensors and MEMS devices and services has been hampered by a technology push versus that of an applications/market pull strategy. I also believe that this is due to the management of MEMS and sensors companies coming from a research and engineering background where management's opinions include technology is king, technology trumps marketing, and anybody can do marketing.

My opinions are highly correlated with the results of the Report Card verbatims. MEMS and sensors marketing have typically received mediocre grades with the lowest being C- and hovering in the C level. I believe that MEMS and sensors marketing is considered to be somewhat of an oxymoron<sup>[5]</sup> primarily influenced by management's:

- Lack of knowledge and familiarity of basic marketing principles.
- Lack of adequate market research on unfulfilled customer needs.
- Limited and inadequate budget allocations.
- Adoption of and adherence to “we have a better mousetrap” and/or “ build it and they shall come” mentalities.
- Basic indifference to the value of marketing to the ultimate success of the organization.

**MEMS and sensors marketing certainly plays a critical role in the initial and final phases of the MEMS and sensors commercialization process as previously noted in figure 2.**

### **Summary**

**I believe that MEMS marketing, and marketing in general, continues to be plagued by a technology push-versus an applications-pull mentality. I believe that the poor grades of C experienced in 2009 and 2010 were greatly influenced by significantly reduced marketing budgets as a result of the depressed global financial situation during that time. The good news is that the grade has steadily increased to B over the past four years, driven by the need for communicating product differentiation, especially for applications in consumer products and the commercialization of many MEMS-based products in the high-volume consumer marketplace.**

**I believe that MEMS and sensors marketing is somewhat of an oxymoron and, most importantly, that MEMS and sensor companies do not need to have incredibly complex and expensive marketing programs. They just need to be better than the next guy. This translates to making judicious investments in marketing programs, especially in integrated marketing communications (iMARCOM) that target the right audiences.**

### **LEARN MORE**

**The topics of marketing and market research will be addressed within the many tracks scheduled for the upcoming [MANCEF Commercialization of Emerging Technologies Conference](#) (COMS) to be held from October 19-22, 2020 in Rockville, MD.**

### **REFERENCES**

- [1] R. Mc Kenna, Marketing is Everything, Harvard Business Review, Jan.- Feb. 1991
- [2] R. Grace, MEMS Commercialization: From the Lab to the Fab, MEMS Technology Review, Issue 2, No. 1, March 2012, [www.rgrace.com](http://www.rgrace.com)
- [3] R. Cooper, Winning with New Products/Accelerating the Process from Idea to Launch, Perseus Publishing, 2001, 425 pp.
- [4] D. Adams, New Product Blueprinting, AIM Press, 2008, 208 pp
- [5] R. Grace; MEMS (and Sensors) Marketing: Oxymoron or Opportunity; Commercial Micromanufacturing International; Vol. 9, No.4; [www.rgrace.com](http://www.rgrace.com)

## About the Author



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Roger H. Grace is president of Roger Grace Associates, a Naples Florida based strategic marketing consulting firm specializing in high technology. His educational background includes a BSEE and MSEE (as a Raytheon Company fellow) from Northeastern University, and the MBA program at Haas Graduate School of Business at U.C. Berkeley. He has specialized in sensors and ICs for over 35 years with a focus on micro electromechanical systems (MEMS). He has authored over 75 technical papers and articles, organized, chaired, and spoken at over 50 international technical conferences.

Roger is frequently quoted as an industry expert in major international technical and business publications on the topic of technology commercialization. He was the co-founder, past president, and currently is the Vice President of the Americas of the Micro, Nano and Emerging Technologies Commercialization Education Foundation (MANCEF), and has served on the Board of Directors of the Florida Manufacturing Extension Partnership from 2008 to 2014. For more details, contact Roger via email at [rgrace@rgrace.com](mailto:rgrace@rgrace.com) and to learn more, visit [www.rgrace.com](http://www.rgrace.com).