

Editorial Director

Gary Breed
gary@highfrequencyelectronics.com
Tel: 608-845-3965
Fax: 608-845-3976

Publisher

Scott Spencer
scott@highfrequencyelectronics.com
Tel: 603-472-8261
Fax: 603-471-0716

Associate Publisher

Tim Burkhard
tim@highfrequencyelectronics.com
Tel: 707-544-9977
Fax: 707-544-9375

Assistant Editor

Katie Landmark
katie@highfrequencyelectronics.com
Tel: 608-845-3965
Fax: 608-845-3976

Production Assistance

Ken Crocker

Business Office

High Frequency Electronics
7 Colby Court, Suite 7-436
Bedford, NH 03110

Editorial and Production Office

High Frequency Electronics
403 Venture Court, Unit 7
Verona, WI 53593

Also Published Online at

www.highfrequencyelectronics.com

Subscriptions

Subscribe online at:
www.highfrequencyelectronics.com
or by mail to the Business Office
E-mail inquiries to: circulation@
highfrequencyelectronics.com

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New Developments— Engineering-Driven or Market-Driven?

Gary Breed
Editorial Director



More than a few long-time engineers believe that the profession is not as rewarding as it was in the 'old days.' Nearly all of them cite the emphasis on designing only for the marketplace instead of creating devices that offer previously unanticipated functions, or even developing entirely new technologies. In short, they miss developing products in an environment that is more research-oriented rather than production-oriented.

As a former President said, "I feel your pain." I agree that there is a definite change in the nature of the engineer's work environment and design objectives. There are times when I miss the excitement surrounding a new major discovery or development that offers a leap forward at the scale of a Nobel Prize.

But I sure don't want to go backward from here. The biggest reason why today's engineering is so strongly market-driven is that we are reaping the benefits of those exciting developments of the past. The marketplace wants our technology!

Anyway, I don't think the engineering-driven approach has really gone away. While mass-produced products get the spotlight in the business pages of your local newspaper, there is plenty of work underway seeking new knowledge of fundamental physical principles or finding new ways to build electronic devices. These efforts are *not* being done in response to a marketing department's determination of what customers want; they are in the 'old days' style of seeking new knowledge that may (or may not) be useful for future products.

I guess you can say that all research is ultimately market-driven. It's just a matter of perspective—is the market asking for this now, or do we hope this work will be used in the future?

Something is Missing

OK, that's my general philosophical discussion—now for something more specific. There really is something missing in today's engineering

environment—big players with the vision and resources to simultaneously explore fundamental knowledge and pursue business profitability in the marketplace. There are some excellent companies in the electronics and communications business, but none of them has the kind of impact of the former AT&T/Bell Labs or RCA/Sarnoff Labs.

Other pioneer companies that remain—like Raytheon, Motorola and General Electric—have made changes in size and/or focus and are not the same development leaders that they once were. Internationally, the biggest remaining giant is Philips, but it does not have the long history of a Marconi or GEC.

Although we haven't had the kind of recent developments that rival the invention of the transistor

or integrated circuit, some things come pretty close. Electromagnetic simulation, IC materials and fabrication, wireless networking concepts and mobile propagation studies all deserve a spot on the list of all-time great developments.

Relatively new companies are taking on major roles that once were the domain of the giants of the 'old days.' Instead of one big company, though, there are many smaller (but still substantial) companies making individual contributions to the industry. They don't have the resources of a Bell Labs, but progress is being made.

Everything we do today is built on the work of the past. Sure, we miss the excitement of those past developments, but we should revel in the new developments that move technology forward. Frankly, I don't see much difference whether the

source of the inspiration was an engineer's 'original' idea or created in response to the challenge of developing a competitive product for the marketplace.

Looking Ahead to 2006

High Frequency Electronics' Editorial Calendar for 2006 is included on page 62 of this issue. As we sat down and decided which topics to cover, it was clear that there was no way to cover it all! Our calendar represents just some of the highlights of our industry that we will make an extra effort to examine. Fortunately, we always leave room to do more.

Our technical articles are the principal way we address both timely and timeless topics. If you are interested in contributing an article on these—or other—topics, just send me an e-mail.