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Marketing and Selling Strategies

"Strategy must be based on facts, not on wishes. Market research is the fundamental intellectual discipline underlying the creation of effective business strategy." Dr. Barry Unger, co-founder, MIT Enterprise Forum.

How much, and when, do we have to invest in market research to create a foundation for strategy?

The MIT Enterprise Forum asked Mr. Grabowski to develop a new metric to answer that question for technology-based enterprises. For the IEEE, in the 1990s, he published data on the Marketing/Engineering Investment Ratio (M/E Ratio), from both successes and failures, to guide entrepreneurs. Now, in his one-hundredth paper, Ralph delivers a major update for the new millennium that reveals the **financial and human impact** of the investment in upstream marketing that underlies fact-based strategy:

- more than 1 Trillion dollars
- more than 400,000 jobs
- more than 100,000 engineers

Wishes Similarly the upstream marketing budget must be based on facts, not on wishes.

For example, "I wish we did not have to consume our precious capital in market research; we have this heavy-duty technology to develop. I wish that I could devote my limited budget to engineering. I wish to have revenue first, then expenses."

The evidence shows that successful technology-based enterprises invest, on average, more than two dollars in market research for every dollar in technology. They use the facts to create winning marketing, promoting, and selling strategies; and make a ton of money.

Enterprises in the success data have created more than 400 Billion dollars of value, as well as generating more than 70,000 jobs and more than 25,000 positions for engineers.

At first, the data may seem counter-intuitive. How could EMC, with about 9,300 engineers out of 20,000 employees, invest as much in the upstream marketing process as they do in engineering? In fact, only about 2,000 engineers write software code or design hardware at EMC. Of those 2,000, many invest a significant fraction of their time doing market research as team members alongside marketing and strategy people.

Failures do not invest in the upstream marketing process, devoting, on average, only about two cents towards market research for every dollar in engineering. Without the facts, they develop failing strategies; and go down in flames or become bankrupt. Flaming failures generate pain; employees lose their jobs, entrepreneurs lose their companies, and investors squander their money.

Besides losing more than a Trillion dollars for investors, the ventures in the failure data have eliminated the slots of about 100,000 engineers.

	Develop	Sell
Market research	2	
Engineering development	1	
Promoting & selling		
	Time →	

Ralph Grabowski is a MIT-trained Electrical Engineer who focuses on the upstream marketing process for technology-based enterprises. He has helped launch new products, new companies, and new fields that gainfully employ thousands of his fellow engineers; and which are worth more than ten Billion dollars.

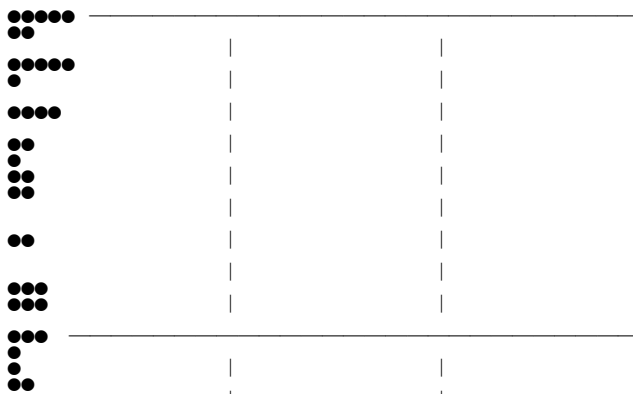
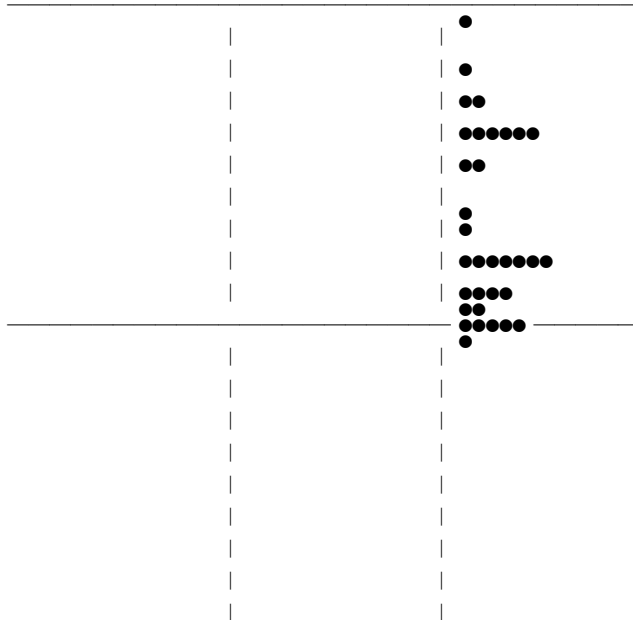
Ralph enjoyed seven years a solid-state microwave circuit engineer. He has thirty-three years of marketing experience, beginning with a 1970 startup, Applicon, helping to pioneer the Computer-Aided-Design (CAD) and Electronic Design Automation (EDA) fields.

Mr. Grabowski has been an IEEE member for thirty-six years, serving as Chairman of Robotics and Automation, and of Microwave Theory and Techniques (MTT) Chapters. Ralph co-founded the world's first Robotics and Automation Chapter, here in Boston, now an IEEE Society, and has Sponsored the IEEE Entrepreneurs' Network. He co-founded MIT's annual entrepreneurship program, and co-founded Technology Capital Network (TCN) at MIT.



Marketing*/Engineering Investment Ratio™

(*) excludes promoting and selling



Flaming Failure ↑ *Neither* ↑ **Super Success**
 ↓ ↑

IEEE Entrepreneurs' Network
Waltham, November 7, 2000
handout with recent evidence
IEEE ENET logo with permission

- Infinity Balico, balance aid medical device, Grand Prize Winner '05
- Infinity Helicos BioSciences, single-molecule DNA sequencing '03
- Infinity Angstrom Medica, synthetic bone, Grand Prize Winner '01
- MIT \$50K Entrepreneurship Competition
- 9 Liton Medical (ex-BD, ex-DataMedix), mid '80s
- 6.25 MolecularWare, bioinformatics MIT \$50K Grand Prize '99
- 5 ZippyCool, beverage cooler MIT \$50K Semi-finalist '99
- 5 Invent Resources, product development '93
- 4 Becton Dickinson, medical - arrhythmia recall '78-'80
- 4 Varian Associates, Component Leak Detector '93
- 4 DIVA (AVID), video editing software '90-'93
- 4 LiquidPiston, combustion engine MIT \$50K Runner-Up '04
- 4 ZippyCool, beverage cooler MIT \$50K Semi-finalist '99
- Adaptive Optics, Div of United Technologies
- 3.2 two machine vision systems, 3.2 '94, 4 '95
- 3 AFC Cable, armored wiring systems '95-'96
- 2.33 Exact Labs, colon cancer diagnostics '95-'96
- 2 MarketSoft, enterprise software '98-'02
- 1.5 Dell Computer, PCs '90s
- 1.53 thingworld.com, Internet media '98
- 1 - 2 Juno, free e-mail '96
- 1.5 Cytoc, PAP smear preparation '88-'89
- 1.5 Intuit, financial software '90-'93
- 1.5 Z2, injection molding flow device MIT \$50K Finalist '99
- 1.5 PSI Environmental, boiler temperature gauge '93-'95
- 1.25 Phoenix Controls (Honeywell), VAV controls '83
- 1.25 Molten Metal (MMT), elemental recycling '91
- 1.2 Monster, employment via the Internet '95
- 1.2 Aurora Systems, CTI software '90-'94 and precursor
- 1.1 Brooks Automation, semi robots & cluster tools '89-'90
- 1.1 Evidian USA, enterprise software '97-'99
- 1.05 Reflective Technologies, reflective sportswear '94-'95
- 1 Amana (Raytheon), RadaRange microwave oven '66-'75
- 1 Acugen Software, semi test software '86-'00s
- 1 Lycos, global Internet hub and media '97
- 1 EMC, enterprise storage '90s
- .9 Open Market, Internet commerce software '98

Financial and human impact:

- > 1 Trillion dollars
- > 400,000 jobs created or lost
- > 150,000 engineering slots developed or gone

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marketingVP.com - results through June 17, 2010
●● multiple data at one M/E Ratio™

- .1 Molten Metal '97
- .1 Optra, electro-optic sensors - 88 SBIR '84-'95
- .1 Keithley Metrabyte, data acquisition Taunton MA '93
- .1 MRS Technology, FPD lithography '86-'97
- .1 Hampshire Instruments, X-ray stepper '91-'92
- < .1 Essential Research, vacuum system CAD '90-'93
- < .09 RVA Technology, software '82-'85
- .07 StarGen, fabless semiconductors '99-'06
- .07 Orchid BioSciences, genotyping '98
- .07 Veeco, wafer particulate detector '85
- .07 Keithley Instruments, Cleveland OH '93
- .06 GCA '81, semiconductor stepper
- .06 GCA '92, semiconductor stepper
- .05 Brooks Automation, semi robots '77-'85
- .05 Hampshire Instruments, '84-'90
- .05 ITRAN, machine vision '79-'93
- < .05 Varian Associates, IMPATT microwave oscillators '69
- < .04 Object Databases, software '92
- < .04 Polaroid, instant photography '90s
- .037 Machine Technology (MTI), semi track '93
- .033 Raytheon, RadaRange microwave oven '44-'65
- .033 Micronix, X-ray stepper '81-'87
- .033 Evidian USA, enterprise software (2) '92-'96 & '00-'02
- < .033 KSR, supercomputers '86-'95
- < .03 Cisco, Internet routers '00
- .02 Quarterdeck, operating system (OS) software '90s
- < .02 Luminus Devices, LED lighting '10
- .015 Cetacean Networks, real-time Internet & VoIP '00-'04
- .014 Fusion Lighting, lighting '91-'02
- .013 Genuity, Internet '98-'00
- .013 electronics & instrumentation, AMA, '53
- .012 HyperDesk (FTP), Internet groupware '92-'95
- .01 Becton Dickinson (BD), Telocate patient location '73-'77
- .01 DataMedix (bought BD division), early '80s
- .01 Physical Sciences (PSI), > 200 SBIR '84-'95
- < .01 Xerox, copiers '94-'02
- .008 Thinking Machines, supercomputers '90-'94
- .007 Lotus, office software '90s
- .007 Nortel, telecom '84-'02
- .004 Digital Equipment (DEC), PCs & minicomputers '90s
- .003 Applicon, Computer-Aided-Design (CAD) '72-'82
- .002 Lucent, telecom '67-'03
- .002 SAL, X-ray stepper '81-'00s
- < .001 WANG Laboratories, PCs & minicomputers '84-'91
- < .001 VNCL, network video '93-'99
- Zero Thinking Machines '83-'89