

# Electronic BUSINESS

THE MANAGEMENT MAGAZINE FOR THE ELECTRONICS INDUSTRY

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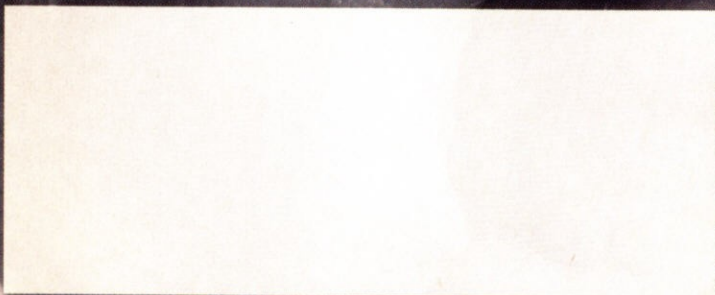
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# A new financial ratio

**I**nventing a better mouse trap in no way guarantees a successful product. On the contrary, it might just as easily spell disaster. Intuit, a financial application software company with revenue of \$600 million, was worth \$2.1 billion to Microsoft in its 1995 attempted acquisition. On the other hand, Thinking Machines, a massively parallel hardware vendor, blew \$120 million and declared bankruptcy. Both had good technology, so why did Intuit succeed where Thinking Machines failed? The answer lies in the balance between marketing and engineering investment.

The theory is pretty straightforward: the more a company spends up front to understand the market and learn what the customer really wants, the higher the likelihood its products will succeed. That's where the Marketing/Engineering (M/E) Investment Ratio comes in. With research supported by the MIT Enterprise Forum, this metric was developed to test if there

The evidence reveals that super successes invest about \$2 in up-front marketing for every \$1 in engineering. Flaming failures suffer from an M/E Ratio of 0.1 or lower, averaging less than a nickel in marketing for each engineering dollar. The implication for technology-based enterprises is clear. If you don't already buy into the fact that marketing is important, then you need to shift your thinking and the company needs to shift its investment commitment toward more decisive, early marketing.

## Successful companies invest more than twice as

Consider one example. Varian Associates, a semiconductor equipment vendor, launched its 990-CLD Component Leak Detec-

## much in market research as they do in engineering

is a relationship between the amount a company invests in marketing relative to engineering, and the success of a product.

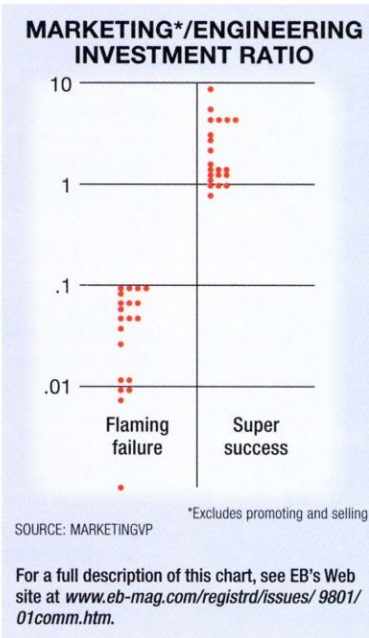
Marketing includes all pre-production market research and excludes all promotion and sales expenditures. It includes such things as quantification of needs, understanding the potential customer, developing business models, payback calculations, primary and secondary market research, market segmentation, food-chain analysis and competitive intelligence. Engineering includes design, development and prototyping of the product (the typical engineering budget).

The chart at right displays the relationship between the M/E Ratio and a product's success or failure. It covers diverse technologies, includes startups and Fortune 500 companies and spans the 1950s through the 1990s. The vertical scale is the log of the M/E Ratio. A ratio above 1 indicates more investment in marketing than in engineering.

tor in 1993 with an M/E Ratio of 4, investing in nine months of marketing before committing engineering. Armed with definitive guidance from marketing,

engineering completed the product in 19 days. Varian Vacuum Products Manager Peter Frasso credits up-stream marketing. "This is a super success. We created a whole new product category, and dominate that market to this day," he says.

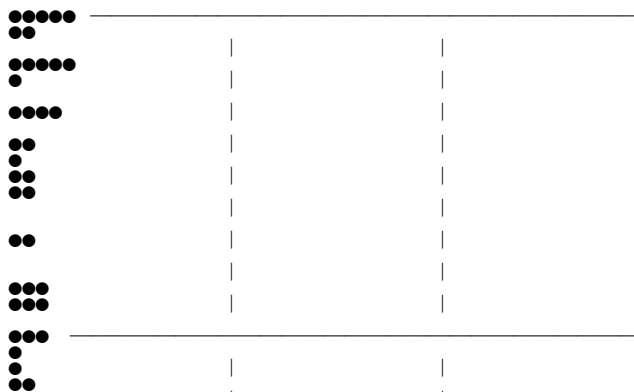
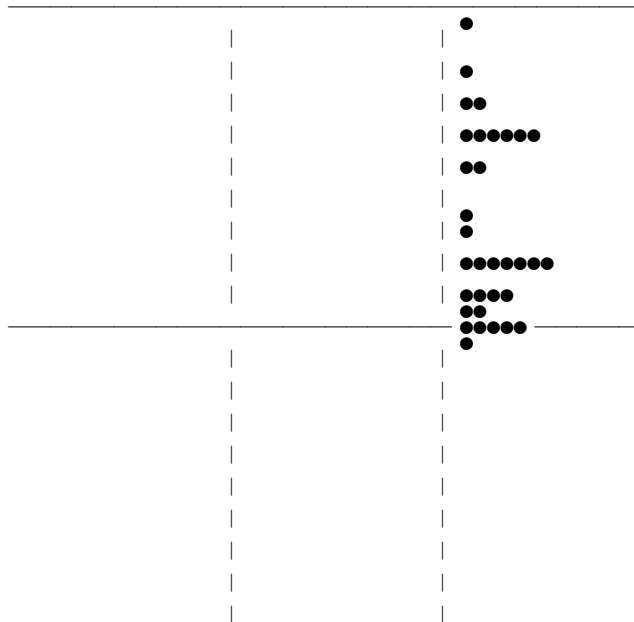
The M/E Ratio suggests you should spend more up front to find out who will buy the product. And senior management should review its investment strategy to avoid wasting money on projects that customers don't want. ●



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# Marketing\*/Engineering Investment Ratio™

(\*) excludes promoting and selling



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

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
9	MIT \$50K Entrepreneurship Competition
6.25	Litton Medical (ex-BD, ex-DataMedix), mid '80s
5	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
4	Adaptive Optics, Div of United Technologies
3.2	two machine vision systems, 3.2 '94, 4 '95
3	AFC Cable, armored wiring systems '97
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 '98
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
.06	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
.02	Cisco, Internet routers '00
< .02	Quarterdeck, operating system (OS) software '90s
.015	Luminus Devices, LED lighting '10
.014	Cetacean Networks, real-time Internet & VoIP '00-'04
.013	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