Myths About New Product Failure Rates

Perspective: New Product Failure Rates:
Influence of Argumentum ad Populum and Self-Interest

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Introduction

Argumentum ad Populum (Latin: an argument to the people) is the logical fallacy that if a lot of people believe something then it must be true (Engle, 1994; Freeman, 1995). Nowhere is this more evident than the product failure rates.

The common assertion that 80-90% of products fail is an "urban legend." The empirical literature does not support this popular belief.   No matter how many times it is asserted or how many people believe it, the idea that 80% of products fail is as common as it is wrong. The actual product failure rate is around 40%.

The *Argumentum ad Populum* – Fallacy of the Product Failure Rate

Argumentum ad Populum only proves a belief to be popular, not whether it is accurate. *Argumentum ad Populum* can be used to establish questions of social conventions such as manners, preferences, public opinion, and habits. It can also be used inductively to assess the market response to a new product, for example, if 90% of a population prefers one product to another one may infer that the next person will also favor that product. *Argumentum ad Populum* cannot be used deductively to conclude that because 90% of the people prefer the first product that the first product is actually better (e.g., Beta vs. VCR).

Arguementum ad populum is a common marketing technique used to convince potential customers that a product is good because lots of people like it. For example, 9 out of 10 people prefer product X. Preference, however, does not prove a fact. The Earth was not flat no matter

how many people believed it. The Sun does not revolve around the Earth. Smoking does hurt and the product failure rate is not 80%.

The assertion that the product failure rate is around 80% is common, and failure rates as high as 90% or higher are sometimes cited. Table 1 identifies academic, practitioner, consultants, electronic blogs, textbooks, online course material and other sources that quote high failure rates. Anywhere the conversation turns to product failure rates the 80% figure, or some even higher percentage, seems to be mentioned. Table 1 is only illustrative of the many references we could use; there are literally hundreds. This table is not used as evidence that the failure rate is 80%, just that it is a popular belief.

Table 1

References to the common belief that the new product failure rate is high

Reference	Failure Rate
O'Meara, J.T. (1961), "Selecting profitable products", Harvard Business Review, Vol. 39, p. 83.	80%
Schorr, B. (1961), "Many new products fizzle despite careful planning, publicity", Wall Street Journal, April 5, p. 11.	89%
"Why do products fail?" http://www.theproduct.com/marketing/product_failure.htm	85%
http://faculty.msb.edu/homak/homahelpsite/webhelp/New_Product_Failure_Rates.htm	75%
US Department of Commerce.	90%
Strategic Management Theory: An Integrated Approach, Charles Hill, Gareth Jones. Page 131	80-90%
Gourville, John T. (2006), "Eager Sellers and Stony Buyers: Understanding the Psychology of New-Product Adoption." *Harvard Business Review* 84, no. 6 (June).	40-90%
Schlossberg, H. (1990), "Fear of failure stifles product development", Marketing News, Vol. 24 No. 10, pp. 1-16.	95%
"Why Do New Products Fail?" University of North Texas. http://courses.unt.edu/kt3650_4/sld003.htm	50-80%
Friedman, H. H. 2011. "Product Policy." http://academic.brooklyn.cuny.edu/economic/friedman/mmproductpolicy.htm	80%
Dillon, Karen. 2011. "I Think of My Failures as a Gift." Harvard Business Review. 88 (3).	80%
"External Innovation." Venadar. http://www.venadar.com/what_we_do.html	80%
Copernicus Marketing, Consulting and Research. 2010. "Top Ten Reasons for Business Failure." GreenBook. http://www.greenbook.org/marketing-research.cfm/top-10-reasons-for-new-product-failure	80-90%
Berman, Rob. 2010. "Why are New Products Launched?" Rob Berman's Blog. http://www.rob-berman.com/why-are-new-products-launched-part-1-of-4/	81%
Scanlon, Scott. "Why a High Failure Rate in Social Media?" You Brand, Inc. http://www.youbrandinc.com/social-media/why-a-high-failure-rate-in-social-media/	80-90%

Many of the popular press references to the failure rate are difficult to track down. Harvard Professor Clayton Christensen is often quoted as saying the failure rate is 95%. In communication with Professor Christensen, however, he denies ever saying that and indicated the failure rate is lower. He further muses that as a profession we have not done a good job empirically validating this fundamental fact.

New product failure rate is referred to as the percent of new products actually introduced to the market and then fail to meet commercial objectives of the business unit that launched the product. We do not refer to the failure rate as the rate which products fail to perform technically or prove hazardous once in the market; nor does it refer to the mean time between failure (MBTF) or to the manufacturing yield rate.

In many success or failure references it is impossible to tell if the authors were referring to idea or product failure rates. Idea failure rates refer to the percent of ideas that enter the development process but are not launched as commercial products. The product failure rate refers to the percent of products that are launched that fail. The confusion between idea and product failure rates may contribute to the ongoing misinformation that new product failure rates are around 80%. For example, an article by Stevens and Burley is often quoted as an alarm that the failure rate is high (Stevens and Burley, 1997). But what is often overlooked is that these authors were referring to *raw ideas* and not commercialized products. Stevens and Burley suggest it takes 3,000 raw ideas at the front-end of the product development process for one commercial success. In the same article, they also state there is one commercial success for every two products launched: a 50% new product failure rate.

The Real Rate of New Product Failure

If the often-quoted figure of 80% is not supported, then is there actually a supportable figure? In 1977 and again in 1987 Crawford reviewed the literature, eliminating all the unsupported and hearsay references and reporting only empirically-verified failure rates. In both cases, he found the product failure rate was around 35% (Crawford 1979; 1987). His definition of when a new product comes into existence is "a new product does not come into existence until it is successfully established in the market place, that is, until the product is doing whatever the management expected it to do. Until that time it is really only a concept, in temporary physical form. The form is locked in when it becomes successful: otherwise we keep trying new variations. This means a failure occurs only when management abandons the concept" (Crawford, 1987, p 21).

Crawford goes on to establish what are now widely accepted dimensions of product success such as, technical uniqueness, competitive advantage, diversity of market offerings, protection of a market position, dollar sales and profitability. Crawford's definition has been used in subsequent empirical work such as the first Product Development & Management Association's (PDMA) study assessing new product development practices and performance (Page, 1993 p 284) and in two subsequent studies by the PDMA (Griiffin, 1997; Adams, 2004). These studies found the failure rate to be: 42% for the period 1985-1989, 40% for 1995, and 46% for the period 2003-2004. See Ernst (2002) for a review of product success factors.

Since that time other empirical work has indeed found the rate to be around 40%. Nineteen peer-reviewed research studies between 1945 and 2004 find failure rates in the range of 30–49%, with some understandable variation due to industry differences (Castellion, 2012). These studies examine the failure rates for new products launched by more than a thousand business units in over ten industries. Table 2 identifies empirical evidence of new product failure rates.

Table 2

References to empirical studies of new product failure rates

Reference	Failure Rate
Crawford, C. M. Marketing research and the new product failure rate. *Journal of Marketing* 41:51-61 (April 1977).	35%
Crawford, C. M. New product failure rates: A reprise. *Research Management* 30(4):20-24 (July-August 1987).	35%
Booz, Allen, & Hamilton (1965), Management of New Products, Booz, Allen, & Hamilton, New York, NY.	33%
Cooper, R.G. (1979). Identifying industrial new product success. *Industrial Marketing Management*, **8**, 124–135.	48%
Robert G. Cooper, (1980) "Project NewProd: Factors in New Product Success", European Journal of Marketing, 14, (5/6):277-292	40%
Cooper, R.G. and Kleinschmidt, E.J. (1986). An investigation into the new product process: steps, deficiencies and impact. *Journal of Product Innovation Management*, **3**, 71–85.	39%
Cooper, R.G. and Kleinschmidt, E.J. (1993c). Uncovering the keys to new product success. *Engineering Management Review*, **11**, 5–18.	33%
Cooper, R.G. (1993). *Winning at new products: accelerating the process from idea to launch.*	

Addison-Wesley: Reading, MA.24-45%Griffin, Abbie. 1997. "PDMA Research on New Product Development Practices: Updating Trends and Benchmarking Best Practices." Journal of Product Innovation Management 14: 429–45840%Page, A.L. (1993). Assessing New Product Development Practices and Performance: Establishing Crucial Norms. Journal of Product Innovation Management 10(4):273–290 (September).42%Adams, M. (2004) "Findings from the PDMA Research Foundation CPAS Benchmarking"

http://www.pdma.org/shop_pdma_description.cfm?pk_store_product=2524% for top performers, 46% for the rest of the sample Barczak, G., Griffin, A., Kahn, K. (2009). Trends and Drivers of Success in NPD Practices: Results of the 2003 PDMA Best Practices Study. Journal of Product Innovation Management, 26(1)41%Product Development Institute, 2010. http://www.stagegate.com/newsletter/article_feb_2011.htm38% for Top performers. 55% for bottom performers

The difference between Table 1 and Table 2 is dramatic. The popular belief that the new product failure rate is 80% is simply not supported by empirical evidence.

To be fair, failure rates are actually difficult to assess. There are different definitions of success and failure between companies and between researchers. Empirical evidence can be the result of methodological artifacts built into empirical studies. Multiple studies over such a long period of time by different researchers, however, reduce the probability of method bias.

The 2004 Best Practices Study by the *Product Development & Management Association* (PDMA) found differences in failure rates between industries, ranges from 35% for healthcare to 49% for fast moving consumer goods. When the *Best* business units in the PDMA study were split out from the *Rest* the study saw a striking difference in failure rates: 24% (Best) versus 46% (*Rest*). Table 3 shows the PDMA Best Practices success rate broken out by industry. Consumer goods and services, for example, show higher failure rates than healthcare or software. While there are some industry differences, however, no industry provides justification for an 80% failure rate.

Table 3

New Product Failure Rate by Industry

Industry	Percent Failure
Chemicals	44%
Other Materials	39%
Industrial Services	43%
Consumer Goods	45%
Consumer Services	45%
Capital Goods	35%
Healthcare	36%
Software & Services	39%
Technology	42%
Average	41%
Highest	45%
Lowest	35%

Conclusion

One wonders why a company would develop products if four out of five fail. If over 80% of new products fail, why would a professional take the career risk of committing time and talent to develop and launch any new product? What must the remaining 20% of successful products contribute to offset the costs of a development program that fails in the vast majority of cases? New product programs that perform with an 80% failure rate are unlikely to show overall positive contributions. Under these assumptions, many managers would refuse to employ time, talent, and money on any new product project.

A possible reason for preserving the urban legend of an 80% failure rate is that it absolves the new product practitioner of failures and heightens recognition for achieving success. Another reason for marketing research service providers may have self-interest; and, we might suggest the media sometimes prefer to report eye-catching data rather than numbers that appear run-of-the-mill. The high failure rate may be used to justify hiring a consultant or investing in new product development capabilities.

For new product academics and consultants, the continued reporting of 80% failure rates is particularly disheartening. First, as shown in this article, the figure is simply incorrect according to the empirical evidence. The urban legend suggests that the failure rate was 80% in the early 1960s, and remains at that level today. But more troubling, it suggests that the many years of academic research and practical experience devoted to new product development have had little or no effect in reducing risk and improving the likelihood of launching successful new products. With the emergence of professional associations devoted to new products, the increased recognition of innovation as an academic discipline, the publication of several journals devoted entirely to product development or innovation, and the establishment and acceptance of a new product professional certification (NPDP), it is hard to believe that general reporting of the failure rate remains at the same dismal level that was claimed fifty years ago.

Argumentum ad populum may be legitimate in questions of style and taste but in terms of new product failure rates empirical evidence is the arbiter of knowledge, not popular opinions.

Biographical Sketches

Dr. George Castellion is a seasoned elicitor of latent needs and growth opportunities consulting with development teams to help new B2B specialty product concepts achieve the commercial success they deserve. Before starting his consulting practice in 1985, George was a career new product and business development practitioner, coming from the technology side through the marketing side. He is a Past-President of the PDMA, and an Associate Editor of The PDMA Handbook of New Product Development, 1st and 2nd Editions.

Dr. Stephen Markham received his Ph.D. from Purdue University and is professor of management, innovation, and entrepreneurship in the College of Management at North Carolina State University and is president of the Product Development & Management Association (PDMA) Research Foundation, founder of the PDMA New Product Development Professional Certification Program, past PDMA officer and board member, and past director of the

Technology, Entrepreneurship and Commercialization Program (TEC) and Center for Innovation Management Studies (CIMS). His research focuses on the roles and processes in the front end of innovation, concentrating on the role champions take in early commercial development of technology. Dr. Markham has been a founding board member or officer of numerous high-technology start-up companies and consults with numerous global technology-based companies.

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