

MANAGERS' KNOWLEDGE OF MARKETING PRINCIPLES: THE CASE OF NEW PRODUCT DEVELOPMENT

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ABSTRACT

Do marketing managers have well-established marketing principles to guide decision making? We addressed this question by examining 15 principles of new product development obtained from an expert panel of Australian senior marketing practitioners. Of these 15, three turned out to be tautologies, six had at least some empirical support, and six were partly or fully contradicted by empirical studies. In examining the literature for evidence, we were also able to identify five well-established 'empirical generalisations' about new product development. These results indicate that while principles of new product development do exist, there are fewer of them than we might have thought, and practitioners appear unable to distinguish between good and bad principles.

INTRODUCTION

Do marketing managers use well-established marketing principles to guide decision making? If not, do they know some things which academics don't, or are they merely relying on speculation, anecdotes, and myths?

Armstrong and Schultz (1993) attempted to examine the role played by marketing principles. They identified normative statements in a sample of introductory marketing textbooks, used expert opinion to determine whether these statements were surprising, useful, and correct, and hoped to determine whether the resulting principles were being effectively communicated to management. Unfortunately they were unable to pursue the last part of their research program, as the marketing textbooks they examined yielded hardly any principles.

This is a depressing result for those of us who hope that academic work in marketing has some relevance for industry. However, it may be that research findings are making their way into industry in some way other than through

introductory textbooks. Equally, industry may be developing its own principles through experience, and academia may have yet to catch up with the wisdom developed over the years in the commercial world.

This paper takes a small step in exploring these issues. We reverse the approach taken by Armstrong and Schultz (1993) by first identifying principles that are widely held by practitioners, and then determining whether or not these principles are supported by empirical research. This avoids the problem faced by Armstrong and Schultz (1993), who were prevented from assessing practitioner knowledge by a lack of identified marketing principles.

The principles examined in this paper were restricted to the area of new product development (NPD). NPD was chosen because the views of an expert panel of practitioners were already available (Shoebri 1996), and also because it is an area of considerable interest to practitioners and academics alike.

We proceed in this paper by developing the concept of 'marketing principles' and describing our method. We then examine the beliefs of the practitioners to identify and codify potential NPD principles. Finally, these potential principles are assessed by examining the research literature for supporting or falsifying evidence.

The result is useful in several ways. First, it shows how well research in marketing has filtered through to management beliefs (or at least to what degree managers' beliefs are consistent with academic research). Second, it highlights any myths that are still accepted by marketing practitioners. Finally, it discloses gaps in the literature where the principles that are guiding marketing practice have not been subject to rigorous tests.

MARKETING PRINCIPLES AS EMPIRICAL GENERALISATIONS

According to Armstrong and Schultz (1993) "principles should help marketing managers to make better decisions because they *incorporate marketing knowledge derived through previous research and experience*" (our italics). They provided a working definition that principles were "normative statements that specify a condition followed by a suggested action" (Armstrong and Schultz 1993).

To us, the idea that principles must be "normative statements" is a red herring, albeit one with a long history (eg. see Hunt 1991, p. 9-34). Normative statements always rely on underlying "positive" or "descriptive" statements. Armstrong and Schultz' (1993) own example of a normative statement, "the illustration in a print ad should be placed above the copy", is a case in point. The actual content of this "normative" statement is something like the following:

- Premise 1 Print ads with their illustration placed above the copy are more effective than those with their illustration placed below the copy.
- Premise 2 Effective advertising helps to achieve company objectives.
- Conclusion To help achieve company objectives, "the illustration in a print ad should be placed above the copy".

The final part of the conclusion is a "normative" statement, but it relies entirely on the descriptive premises and subsequent chain of logic. In fact it is Premise 1 which really represents the "marketing knowledge derived through previous research and experience", and we therefore see marketing principles as simply *statements of marketing knowledge derived through previous research and experience*.

Of course this begs the question of just what previous research and experience is required to justify a statement of marketing knowledge. This is an important issue; not so long ago, Leone and Schultz (1980) concluded that “there are no universal generalisations in marketing ...there is a great deal of empirical research, but very little is generalisable”. Unless they are generalisable, statements of marketing knowledge can only be of passing interest.

Since 1980, a number of empirical generalisations have been published, including some that had long been established but that Leone and Schultz (1980) were unaware of. There has been an upsurge of interest in the area, culminating in a presentation of papers by leading marketing scholars at a Wharton conference in 1994, and a subsequent special issue of *Marketing Science* in 1995 (Vol 14, No 3, Part 2 of 2, 1995) which documented a wide range of empirical generalisations in marketing. Perhaps the best known of these generalisations are those described by the Dirichlet model of repeat purchase and the Bass diffusion model (Uncles, et al. 1995).

At the Wharton conference it was proposed that an empirical generalisation is “a pattern or regularity that repeats over different circumstances ... There must be a pattern that repeats but it need not be universal over *all* circumstances” (Bass 1995).

Common characteristics for empirical generalisations are:

- multiple studies: a minimum of two studies that show the generalisation;
- objectivity: different studies should have been undertaken by different researchers;
- consistency: the results should be consistent under diverse conditions (Bass and Wind 1995).

These requirements may appear easy to achieve, but in practice it actually quite difficult to find published replications which agree with the original studies (Hubbard and Armstrong 1994).

Barwise (1995) also outlines characteristics of *good* empirical generalisations:

- they describe precisely rather than loosely;
- they are parsimonious (ie. omit variables that are superfluous); and
- they must be useful to practitioners.

Thus, we see marketing principles (empirical generalisations) as statements of marketing knowledge based on multiple studies by different researchers, and producing similar results under defined circumstances. Ideally, they will be precise, parsimonious, and useful to practitioners.

METHODOLOGY

To examine the marketing principles that practitioners hold, consideration was given to the results of a recently published Business Review Weekly (BRW) article (Shoebidge 1996) that examined the opinions of fifteen senior marketing managers and market researchers.¹ These leading practitioners provided responses to

¹ Practitioners represented Ardmona Foods, Woolworths, Pepsi-Cola Bottlers, Goodman Fielder, AC Nielsen, Cadbury Schweppes, Smiths Snackfoods Company, Bond Brewing, Market Mind

questions such as "what factors make for a successful NPD process?" and "why do some products fail?" Together with the BRW article's author, who himself is cited in marketing texts (eg McCarthy, et al. 1997), these people comprise what we would consider to be an expert panel.

Panels of experts can yield useful insights. While the use of such a panel is a qualitative research technique, it captures the distilled judgements of a small number of knowledgeable individuals, who themselves have access to quantitative information of relevance to the research problem. The views of this particular panel about the NPD process were also important by virtue of the positions the panel members held. Seven were senior marketing executives for consumer products companies with responsibility for introducing many new products. Six were market researchers or consultants who conducted research for these clients and who were responsible for providing forecasts of new product performance. Two were advertising executives with responsibility for creating communications strategies for new products. However, while the opinions of the expert panel contained many statements about NPD, no evidence was cited by Shoebridge (1996) to indicate that these statements had been empirically tested.

One of the authors of this paper examined Shoebridge (1996) in detail and identified anything that appeared to be a *statement of marketing knowledge derived through previous research and experience* (our definition of a marketing principle). The sources of these statements were all the direct quotes from the practitioners and all normative, instructive, or summary style comments made by Shoebridge.

Two of the authors then screened the identified statements to ensure 'empirical content'. This involved ruling out nonsense statements and strictly analytical statements, to arrive at a workable list of synthetic (empirical) statements. While nonsense statements refer to phenomena that do not exist (we found none of these), analytical statements are less obvious but are more important to detect (Hunt 1991). Analytical statements are those that are devoid of empirical content, being statements of logic. 'One plus two equals three' and 'it may or may not rain today' are two such examples. Analytical statements from the article include:

- to succeed, a new product must have everything right: name, packaging, distribution, advertising, pricing, and taste or performance;
- when a product fails it is likely to have one flaw: the wrong price, the wrong distribution, bad advertising, whatever;
- a successful new product must be priced correctly, sold through the right distribution channels and marketed in a way that will clearly communicate its benefits to prospective buyers.

These three statements are tautological because the 'rightness', 'correctness' or 'flaw' of a variable is always defined by the success of the product. They are undeniable and true no matter what the real world facts are, and serve only to increase the *perception* of the strength of one's arguments (Hunt 1991). Practitioners, seemingly, are not the only culprits of such vacuous phrases much early academic marketing literature contained such truisms (Halbert 1964), as do many textbooks today (Esslemont and Wright 1994). These statements are a danger to the credibility of both marketing practice and marketing science, and it is our opinion that they should be culled from marketing lexicon.

Technologies, Badjar Advertising, Yann Campbell Hoare Wheeler, Ammirati Puris Lintas, Pathfinder Strategies and Dangar Research.

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On the other hand, synthetic statements depend for their truth or falsity on empirical evidence. These statements have the ability to be empirical generalisations, unlike some of the statements made by the expert panel, that were found to be tautological.

After eliminating the analytical statements, the remaining synthetic (empirical) statements were subjected to further screening. One of the authors judged which of the synthetic statements represented potential marketing principles. These judgements were reviewed by one of the other authors and any disagreements resolved through discussion. This gave 10 statements, but one of these was a compound statement that required decomposition and slight rewording before it could be assessed. This decomposition resulted in a total of 12 potential marketing principles.

We then considered whether these 12 potential marketing principles were supported by evidence in the form of empirical generalisations. To achieve this, we examined relevant evidence from nine NPD textbooks, the special issue of *Marketing Science* on empirical generalisations, the contents of a 5000 item library at the Marketing Science Centre which has a strong emphasis on empirical generalisations, and the last ten years of the *Journal of Marketing*. We also followed up any relevant citations found in the bibliographies of articles or books obtained from these various sources.

Interestingly, much of the work in this area cited a practitioner-oriented study (Booz-Allen & Hamilton 1982) as a key piece of research. Two academic authors, Robert Cooper and Elko Kleinschmidt, also proved to be very influential in the literature, as did the *Journal of Product Innovation Management*.

POTENTIAL NPD PRINCIPLES

The 10 statements that survived the screening process are listed below, verbatim, grouped by topic. Statement 2.2 is the compound statement that required decomposition and rewording; it is discussed in more detail overleaf.

NPD Marketing Statements

1. New Product Failure Rate

1.1 seven out of 10 products fail during their first 18 months to two years on the market

1.2 in the past 10 years the success rate has improved to four or five failures out of 10

Presumably the panel members were referring to the period up to the mid 1980's in statement 1.1, and to the period afterwards in statement 1.2, as the Shoebridge article appeared in 1996.

2. Cause of New Product Success/Failure

2.1 sheer weight of marketing dollars increases the probability of new product success

2.2 ego, blind optimism, a lack of common sense, lack of commitment, insufficient resources, inadequate research, and the response of rivals all play a role in the death of new products

2.3 the main reason most products fail is lack of uniqueness (to pierce a full market, a new product must offer something very different)

2.4 successful new products take as their starting point the needs and wants of customers

3. Diffusion Speed

3.1 for low priced consumer products, if repeat purchase patterns are low after three months the product will most likely be a poor performer

3.2 most new low priced consumer products need longer than three months to show their potential

4. NPD Research

4.1 live test markets give better prediction than focus groups, controlled tests in a sample of households or computer simulated test markets

4.2 to pick a winning product, researchers should look at trial and repeat purchase rates, not just raw sales numbers

Decomposition and Rewording of Statement 2.2

Statement 2.2 is a 'catch all' claim of many and varied reasons for success or failure. Before we could proceed, we had to first separate out the various factors in this statement.

The first four reasons in statement 2.2 ('ego', 'blind optimism', 'a lack of common sense', 'lack of commitment') are based on personality traits. These are highly subjective, and self reports of these traits are likely to be clouded by imperfect self knowledge and desirability biases, while external assessments are likely to be affected by halo effects, other forms of desirability biases, and political considerations within the firm. Therefore, we consider the measurement of personality traits in the context of NPD to be unreliable, and do not consider them further.

Of the remaining three reasons in statement 2.2 ('insufficient resources', 'inadequate research', and 'the response of rivals'), the first two are in analytic form. It is surely a truism, for example, that if a product fails, any research conducted will be deemed inadequate. To be open to potential generalisability, these two reasons were recast as a new statement. 'Insufficient resources...' was recast as 'if marketing resources are spent at less than an average level used for entry into a product category then failure is more likely' and becomes statement 2.2a. 'Inadequate research...' was recast as 'if market research is used in the NPD process then this will increase the chances of success'. It is considered under the 'NPD Research' section as statement 4.3. Additionally, the 'responses of rivals' claim is considered separately as statement 2.2b.

This resulting in 12 statements that represented potential principles of NPD. These potential principles may be supported by empirical research, contradicted by empirical research, or there may be insufficient research available to assess them. In any event, given that practitioners made these statements, empirical research in these areas should be of interest to practitioners no matter what its outcome. We now turn to consider the outcome of such empirical research in each of these twelve areas.

1. NEW PRODUCT FAILURE RATE

1.1 seven out of 10 products fail in their first 18 months to two years on the market.

To determine the empirical support for statement 1.1, we examined research into new product success rates. The results of Australian, US and UK studies conducted over the last fifteen years indicated that the success rate of fully commercialised products ranges from 45 to 67 percent. Table 1 summarises the findings of these studies.

Table 1 - Success Rate of Fully Commercialised Products

Researcher(s)	Setting	Success Rate
Hopkins (1980) cited in Cooper (1996)	US consumer and industrial products launched in the late 1970s	66% for consumer products 64% for industrial goods
Peckham (1981)	Analysed Nielsen data across hundreds of US branded food, household, toiletry and drug products	45% - assuming failure if a test marketed brand was not introduced nationally, or if national performance fell 20% below test market performance
Cooper (1982) cited in Cooper (1996)	New product performance in 122 US industrial product firms	67%
Booz, Allen & Hamilton (1982)	Performance of 13,000 new products introduced by 700 US industrial and consumer goods manufacturers	67% for products launched 1963-1968 65% for products launched 1976-1981
Page (1993)	189 North American goods and service companies across both low and high technology industries where the average annual sales exceeded US \$500 million	58% for products launched 1985-1989
Edgett, Shipley and Forbes (1992)	116 Japanese and 86 British owned industrial and consumer product firms operating in the UK	60% for Japanese owned firms 54% for British owned firms
Kleinschmidt and Cooper (1997)	111 Australian industrial and consumer companies	62%

While Page (1993) identifies 75 *measures* of success/failure in the new product literature, the studies in Table 1 all incorporate the notion that it is how the firm itself perceives its product to have performed *relative to their expectations* that determines success. The measure of success is therefore consistent between studies, and it seems reasonable to assume that practitioners would also generally measure success relative to expectations (ie. relative to plan).

Stories of other, more pessimistic, product failure rates may be based on new product projects that were abandoned earlier in the NPD screening path. Booz, Allen & Hamilton (1982) report that for every seven new product ideas, about four enter development and only one and a half are launched, suggesting a much higher

failure rate from the early stages of product development. However Statement 1.1 clearly refers to products which do make it to the market (and thus have the potential to fail in their first 18 months to two years on the market).

The range of results in this area satisfied our criteria for an empirical generalisation. We therefore conclude that it is a well-established NPD principle that the new product failure rate is between 35% and 45% of fully commercialised products launched in developed western economies.

There is one apparent outlier to this generalisation; Peckham's (1981) result of a 55% failure rate. While meaningful, Peckham's result can be explained by its inclusion of test market brands that were not introduced nationally. These are not fully commercialised products, so Peckham's (1981) sample is not directly comparable to that of the other studies.

The failure rate is far from the seven out of 10 reported by the expert panel and clearly supports Cooper's (1996) view "that sources citing the failure rate at launch to be as high as 90% tend to be unsubstantiated and are likely wildly overstated". A possible motivation for maintaining a myth of a high failure rate is that it excuses personal NPD failures and makes successes seem all the more impressive.

1.2 in the past 10 years the success rate has improved to four or five failures out of 10.

Before addressing empirical work it is worthwhile to consider opposing arguments regarding Statement 1.2.

On one hand, it is possible that product failure rates may be dropping, or have already dropped, simply because companies are playing it safe and launching proportionately less truly novel products. Urban and Hauser (1996) report a study which found that 27% of product line extensions failed; 31% of new brands introduced in categories where the company already had a product failed; and 46% of the new products that were introduced to new categories failed.

Although obviously not guaranteed of success, line and brand extensions are considered less risky because they attempt to capitalise on existing market based assets (Aaker and Keller 1990). Rubinson (cited in Rossiter, 1989) suggested that an increasing number of line extensions have appeared in each product category. There is also evidence that proportionately more new products are less innovative, for example Lawrence (1993) found that between 1987 and 1992, the percent of total product introductions rated as innovative dropped from 11.4% to 7.2%.

On the other hand, there is considerable evidence of shortening product lives (Booz-Allen & Hamilton 1982, Page 1993, Urban and Hauser 1993). This phenomenon would make it difficult for companies to restrict their innovations to line extensions, forcing them to attempt to innovate in more risky environments. Furthermore, evidence is cited in a later section in this paper suggesting that product *uniqueness* is an important factor in new product success.

Hence, arguments have been offered to support *and* contradict the claim from the expert panel that new product failure rates have dropped. We now turn to consider the direct empirical evidence.

Booz, Allen, and Hamilton (1982) found that success rates (and thus failure rates) changed only two percent from the 1963-1968 period to the to 1976-1981 period (see Table 1). Page (1993) concurred, reporting that the growth of marketing

knowledge has had little impact on the failure rate, it not having changed significantly since the 1960s. Also two other articles report that recent failure rates have not changed significantly from findings reported in the 1960s, 70s and 80s (Edgett, et al. 1992, Kyriazis and Patterson 1996).

The range of results in this area satisfies our criteria for an empirical generalisation, but the generalisation is that NPD success rates did not change from 1960 through to the end of the 1980s. However, there has been little empirical research carried out in the last few years, so it is possible that changes occurred in the failure rate in that time.

2. CAUSES OF NEW PRODUCT SUCCESS/FAILURE

‘Causes’ of success or failure may appear obvious in hindsight, however do practitioners know what these ‘causes’ are in advance? There were a number of statements made by the expert panel about causes of success or failure, and we consider these in turn. The challenge faced in comparing practitioner statements to marketing principles, however, is that much academic research on the drivers of new product performance has been disjointed and lacking with respect to concise conclusions (Montoya-Weiss and Calantone 1994).

2.1 sheer weight of marketing dollars increases the probability of new product success.

2.2a if marketing resources are spent at less than an average level used for entry into a product category then failure is more likely.

Due to their similarity, Statements 2.1 and 2.2a are considered together. Support for each has existed in the advertising literature for some time. Telser (1964) and Nelson (1974), for example, argue that the amount spent on advertising often seems more important than the message in determining the commercial outcome. Kay (1993) suggested that the element that advertising most supports is ‘company reputation’. This is particularly relevant given that many consumers are now inherently cynical about the explicit claims made by advertising; the only message that advertising can convey that is assessable by consumers is the quality and quantity of the advertising itself. According to Kay (1993), this can influence consumers because they interpret it as a long term commitment to the market and to the quality of the offering (see Kirmani and Wright 1989). Kay also suggests it is possible that consumers’ experience has taught them that heavily advertised offerings tend to be the good quality ones.

Furthermore, a meta analysis of 16 previously published studies, found consistently positive advertising elasticities and also found that advertising elasticities were greater early in the product life cycle (Sethuraman and Tellis 1991). Similarly, Lodish and Lubetkin’s (1992) analysis of IRI advertising test data found that heavy introductory weight was important for new brands. Other studies in the advertising literature (eg D’Souza and Rao 1995), show fairly consistent results that a high degree of repetition of advertising (and hence higher marketing expenditure) has positive effects.

It also seems reasonable to believe that resources affect outcomes. In their study of perceptions of product managers, Page (1993) found that ‘insufficient resources’ is the most frequently mentioned obstacle to successful product development.

Therefore, there is a clear empirically generalisable finding that greater advertising expenditure leads to higher sales during product launch, which in turn supports Statements 2.1 and 2.2a. There is also some anecdotal evidence and argument about the importance of other types of company resources; however they have not been studied extensively enough to make generalisable claims about their role in new product success.

On the other hand, these findings say nothing about the optimal level of advertising, or the profit impact of additional advertising, both of which are of considerable interest to new products managers. However, the initial objective for most new brands is to establish a viable level of sales, and profit requirements are typically waived during the launch period. Given this, the generalisation about advertising expenditure is clearly of some value, although generalisations about sales or profit maximising advertising levels would be of even more interest.

2.2b the response of rivals plays a role in the death of new products.

As one of the reviewers pointed out, this statement cannot conceivably be false. Although it is a verbatim quote in the form of a descriptive principle it is clearly insufficiently precise, and thus fails Barwise's (1995) criteria for a *good* empirical generalisation. However, the frequency with which the response of rivals plays a role in the death of new products is an open and interesting question, and investigation of this question may result in a more precise empirical generalisation.

Regarding the response of rivals, Calantone and Cooper (1979) found that in 13% of cases practitioners reported competitor actions (eg price cuts, initiated promotions etc) had contributed to failure. Cooper (1996) came to a similar conclusion, citing a study that found competitive reaction was a perceived cause of failure in 17% of the failed product cases.

It is quite possible that practitioners would prefer to blame competitive action rather than their own shortcomings for NPD failure. Therefore, to get a more objective view, we turned to a study that examined new product announcement signals and competitive reactions from the perspective of the *receiver* of these signals. Robertson et al (1995) gauged the reaction of large US and UK firms to major intentional competitor signals (eg trade journal and press announcements). Of the firms sampled, only 40% had detected these signals, just half of these 40% reacted, but only 75% of these did so in a competitive fashion (eg introducing a new product, lowering price or increasing advertising or promotions). That is, only 15% of the sample reacted in a competitive fashion to intentional competitor signals.

Other researchers have also found that incumbents are generally unlikely to respond within the first two years to new *firms* entering a market (Bowman and Gatignon 1995) with Robinson (1988) suggesting this is because most new firms are not taken seriously. Robinson (1988) also reported that that 91% of leading incumbent firms did not react to a new entrant firm within the first year, and 82% still had not reacted after two years.

On the other hand, reaction is more likely for existing firms that announce new products; Bowman (1995) found a 50% chance of reaction under these circumstances, and Robertson et al (1995) suggested that the chance of reaction is greater for new products which undercut existing offerings on price.

Hence while firms *do* react to competitive activity, it is certainly not the norm. Reaction rates vary over circumstance and are not as prevalent as we would expect.

The evidence is certainly consistent with the claim that the response of rivals plays a role in the death of new products (perhaps 15% of the time?), but it is not conclusive. What is conclusive is that the number of failures attributable to the response of rivals is limited by the relatively small number of rivals that respond. This is consistent with Montoya-Weiss and Calantone's (1994) finding that market competitiveness is not a *critical* determinant of new product performance.

2.3 the main reason most products fail is a lack of uniqueness.

If we consider uniqueness from the positive perspective (excluding uniquely terrible products), then support does exist for Statement 2.3. Peckham (1981) stated that he had analysed "literally hundreds" of case studies by AC Nielsen and then claimed that in launching a new product in the supermarket goods arena, the offering must have "demonstrable and merchandisable 'consumer plus' that the consumer can easily recognise upon use". Davidson (1976) reached a similar conclusion when studying 100 new fmcg products launched in the UK between 1960 and 1970. He found, through analysing blind tests conducted prior to product launch, that brand success and its distinctiveness were closely correlated. Davidson's results were clear: products offering a radically new appearance or performance immediately apparent to the consumer before use or even a significant difference noticeable after use, were more likely to succeed.

Further support for product uniqueness comes from a study conducted by Kleinschmidt and Cooper (1991) who found that success rate (the percentage of products meeting the firms' financial criteria) was highest for highly innovative products. Surprisingly they found that success rate and product innovativeness are not linearly related, but rather are represented by a 'U' shaped relationship. Highly innovative products (78% success rate) and lowly innovative products (68% success rate) do well, whereas success came to only 31% of products that fell into the middle category. The high success rate of lowly innovative products is consistent with the earlier discussion on the low risk of line extensions compared to more innovative products.

While we have not ascertained that uniqueness is the *main* reason for success, it does seem to be a major factor. Based on our criteria for empirical generalisations, we can put forward the principle that new products that have features that are innovative and unique, and which the consumer can easily recognise, have a better chance of success.

2.4 successful new products take as their starting point the needs and wants of the customer.

Statement 2.4, at first instance, seems straightforward and obvious. After all, student marketers are taught that "marketing should begin with potential customer needs, not with the production process. It should attempt to anticipate these needs. Then marketing, rather than production, should determine what goods and services are to be developed." (McCarthy, et al. 1997). This is, of course, a statement of the marketing concept.

Most research on the marketing concept has followed Narver and Slater (1990) and Jaworski and Kohli (1993) by operationalising the marketing concept as market orientation. Studies examining the link between market orientation and business performance generally find a positive association when subjective measures of performance are used, but the association is often not present when objective

measures of performance are used (see Dawes (1999) for a recent review of this literature).

However, market orientation is a much broader construct than “taking as their starting point the needs and wants of the consumer”. For example, Jaworski and Kohli’s (1993) market orientation instrument has four dimensions, only one of which, intelligence generation, is directly relevant to Statement 2.4. Of the ten items measured on the intelligence generation dimension, only four relate directly to customer needs or market research, and only one refers to future products or services.

Work by Lawton and Parasuraman (1980) may be more directly relevant. They examined the link between adoption of the marketing concept and utilisation of market research in the NPD process. Surprisingly, they found no relationship.

It is also possible to operationalise the marketing concept simply as the use of market research into consumer needs to help develop marketing programs. This topic is considered in the discussion of Statement 4.3. The empirical results reviewed under Statement 4.3 are somewhat contradictory, but at best show market research in a supporting role. There are many other equally important non-marketing factors for new product success (Cooper and Kleinschmidt 1996, Montoya-Weiss and Calantone 1994), suggesting that the needs and wants of the consumer are not necessarily ‘the starting point’ for successful new products.

Therefore, there is insufficient evidence to support the claim that successful new products take as their starting point the needs and wants of customers. On the other hand, while we have found some contradicting evidence it is not clear or widespread enough to be treated as an empirical generalisation.

3. DIFFUSION SPEED

3.1 for low priced consumer products, if repeat purchase patterns are low after 3 months the product will most likely be a poor performer.

3.2 most new low priced consumer products need longer than 3 months to show their potential.

The most striking thing about statements 3.1 and 3.2 is that they appear to directly contradict each other. The first states that three months is sufficient to demonstrate potential, while the second says exactly the opposite.

It may be that this apparent contradiction reflects the differing views of different parts of the distribution channel. For example, with the strength of grocery retailers, it is easy to understand the view that ‘for low priced consumer products if repeat purchase patterns are low after 3 months the product will most likely be a poor performer’. The plethora of new products available means that there is little cost in incorrectly deleting a successful product, but a high opportunity cost in incorrectly persisting with a product which will fail. To the makers and suppliers of these products, however, each represents a huge commitment, which they are understandably reluctant to abandon without first giving it every chance to succeed.

Studies of the penetration and repeat purchase rates of new products are highly commercially sensitive, so available empirical evidence is understandably sparse. However Peckham (1981), using AC Nielsen data in attempting to determine how

long a test market should run for, claimed that after 2 months, only 13% of the tests could correctly forecast market share at 18 months. After 4 months only 37% of the tests could correctly forecast market share at 18 months. While admitting his studies were reporting 'average experiences', Peckham advocates 10 months as the necessary time to decide to 'kill' a product or expand its distribution nationally. Even then, he found that only 85% of the tests could correctly forecast market share at 18 months.

While Peckham's findings provide some support for the claim made by product suppliers (statement 3.2), more research, and by other researchers, is required to develop stronger generalisations. At this point, marketing academics do not know the minimum time required to determine a poor performing grocery product. And practitioners have little to guide them in settings expectations; some products will therefore be pulled too early and others too late.

One further conceptual point can be made; to some extent, the time required will depend on the *inter-purchase time*. That is, the more frequently a product is purchased, the earlier the repeat purchase rate becomes evident. If a product is only purchased every few months (eg. bleach) then the repeat purchase patterns *must* be low three months after launch. Even with a two month inter-purchase time, repeat purchase patterns will be constrained by the diffusion of first purchases; those who do not trial until the second month are unlikely to repeat purchase by the end of the third month.

4. NPD RESEARCH

4.1 live test markets give better prediction than focus groups, controlled tests in a sample of households, or computer simulated test markets.

This is a non-analytic descriptive statement which represents a potential principle. However, in this case the claim is fairly uncontroversial; with test markets typically being highly representative field experiments, their ability to predict success should be high. Peckham (1981) reported that if a brand achieves success in a test market, its odds of success from a national launch are 7 out of 8. The other techniques ranging from discussions of concepts to contrived consumption behaviours achieve nowhere near this result.

Hence, while statement 4.1 made by the practitioners is certainly an empirically supported finding, it is of low value as it is much like saying 'it is easier to see in the daylight than at night'. The real issue here is whether test markets are more cost effective, but the practitioners did not raise this point. Therefore, Statement 4.1 seems to fail Barwise's (1995) requirement that *good* empirical generalisations should be useful to practitioners.

4.2 to pick a winning product, researchers should look at trial and repeat purchase rates, not just raw sales numbers.

We must be careful with this statement, as it is a potential tautology. If a winning product is treated as one that achieves adequate repeat purchase, the statement reduces to "to pick adequate levels of repeat purchase, researchers should look at repeat purchase". Furthermore, repeat purchase will be irrelevant for some products (such as durables or subscription products), and in these cases the statement is clearly false.

Mindful of these caveats, there are empirical generalisations concerning expected levels of repeat-purchase which potentially provide a better indication of the “health” of a new brand than raw sales figure do *by themselves*. Moore and Pessemier (1993) provide a comprehensive *analytical* argument in support of this basic proposition. They illustrate that it is possible for two brands to have similar sales levels but different repeat purchase rates, and claim that a brand with a high level of sales but few repurchases is unlikely to sustain its sales level once “everyone” has tried it. Moore and Pessemier (1993), however, do not support their claim with empirical evidence.

Stationary (and near stationary) brands have similar rates of repeat-purchase as other stationary brands of the same market share (Ehrenberg 2000, Ehrenberg, et al. 1990). This empirical generalisation is captured in the NBD-Dirichlet model. Application of this model can potentially determine whether a brand has “settled down” to its normal market share level (Ehrenberg 1991). Wellan and Ehrenberg (1988) show how a successful new brand launched in the UK exhibited normal repeat-buying almost from the start of its life perhaps because the launch was so successful. These generalisations may also be able to be used to assess whether the repeat-purchase rate of a new brand is high, low or normal given a level of penetration. The repeat rate may also provide an indication of the future level of market share that the brand is trending towards. However, no such claims have been made previously in the literature (eg by Ehrenberg 1991) and we are not aware of any empirical research into these possibilities. Little is known about the repeat-purchase patterns (and other buyer behaviour statistics) of non-stationary brands. More than ten years on from Rossiter’s (1989) claim that store scanner data has the potential to allow marketing science to significantly expand the knowledge of consumer behaviour, it seems we are still to fulfil this potential.

Nevertheless, it appears that statement 4.2 has both theoretical and empirical support.

4.3 if market research is used in the NPD process then this will increase the chances of success.

This statement was originally made as part of the compound Statement 2.2. It is considered in this section along with the other research issues.

There have been several important studies of the key factors determining NPD success (Cooper and Kleinschmidt 1987, Montoya-Weiss and Calantone 1994, Cooper and Kleinschmidt 1996). These studies have clearly identified product superiority and a high quality new product development process as the most important and most consistent factors for new product success. Market research only features as one of a number of development process factors, along with factors such as financial analysis, technical assessment, production issues, development speed, development costs, and product launch, among others.

There are two empirical studies which consider market research specifically. Cooper assessed the use of a variety of marketing activities for 203 industrial new products (Cooper 1988). He found no significant difference between successful and failed new products in their use of marketing research or test markets. Cooper did find that managers were more likely to say successful new products had had more *effective* market research than failed new products, but this finding is somewhat questionable given that the assessment of effectiveness was made after success or failure of the product was already known. Also, Hart and Diamantopoulos investigated 86 companies in seven industries to determine whether better

performing companies used more market research (Hart and Diamantopoulos 1993). A cursory examination of their results appeared to show such an effect, but when Hart and Diamantopoulos controlled for company size, the effect disappeared.

Consequently, there is insufficient evidence to draw final conclusions about whether the use of market research in the NPD process increases the chance of success, but there is some evidence to suggest that it does not, or at least is not a major factor.

CONCLUSION

This paper set out to examine whether the NPD principles reported by senior marketing practitioners were backed by empirical generalisations established through academic research.

We identified principles in the statements made by an expert panel of senior marketing managers and examined each of these statements to ensure it was in a suitable (empirical) form. Our first finding was that, to our surprise, a significant number of the statements made by practitioners were tautologies. That managers communicate in these terms is somewhat worrying. If a medical doctor were to advise patients that they will be sick until they recover, their credibility would not last long. Marketing academics risk the same fate and must be mindful of keeping tautological statements out of their theories and prescriptions.

After decomposing and rewording a compound statement, we compared potential principles to the literature to determine whether there were supporting empirical generalisations. Of the 12 potential principles produced when the expert panel were asked to discuss "what factors make for a successful NPD process?" and "why do some products fail?", we found that empirical research provided at least some support for six, and at least some contradictory evidence for another six. In nine out of the twelve cases, however, we felt that further research was required to fully assess the practitioners' claims. There was only one statement for which we could find no empirical evidence.

Table 2 summarises what we found. While it is not intended to be a scorecard, it helps to clarify what we know with regard to the practitioners' statements, and suggests directions for future academic research. Many of the statements have ticks in two columns, indicating that while there is some evidence, more is required before final conclusions can be drawn. Some of the statements have two ticks against them, indicating that there is a well-established empirical generalisation supporting (or contradicting) this principle.

Table 2 - Summary of Australian Practitioner Beliefs

Claims Made By Practitioners		Empirically supported	Empirically contradicted	Further Evidence Required
1.1	7 out of 10 products fail during their first 18 months to 2 years on the market		✓✓	
1.2	in the past 10 years the success rate has improved to 4 or 5 failures out of 10		✓	✓
2.1	sheer weight of marketing dollars increases the probability of new product success	✓✓		
2.2a	if resources are spent at less than an average level used for entry into a product category then failure is more likely	✓		✓
2.2b	the responses of rivals plays a role in the death of new products	✓		✓
2.3	the main reason most products fail is lack of uniqueness	✓		
2.4	successful new products take as their starting point the needs and wants of customers		✓	✓
3.1	for low priced consumer products if repeat purchase patterns are low after 3 months the product will most likely be a poor performer		✓	✓
3.2	most new low priced consumer products need longer than 3 months to show their potential	✓		✓
4.1	live test markets give better prediction than focus groups, controlled tests in a sample of households or computer simulated test markets	✓		✓
4.2	to pick a winning product, researchers should look at trial and repeat purchase rates, not just raw sales numbers	✓		
4.3	if research is used in the NPD process then this will increase the chances of success		✓	✓

Note: Statement 4.3 is contradicted in the sense that when studies examined this effect directly, it could not be detected. Clearly this is an area which warrants further investigation - investigation which is in the interests of both the market research industry and its users.

These results suggest that practitioners do not have well established marketing principles to guide decision making. Instead, they frequently rely on tautologies, false beliefs, and marketing ‘principles’ that are insufficiently supported by the empirical evidence. On the other hand, there is at least tentative empirical support for around half of the practitioners’ potential principles examined in this paper. However, of the statements made by the expert panel, these were generally the weaker statements.

We also uncovered five well-established NPD empirical generalisations that had some bearing on the 12 statements in Table 2. This is a positive outcome, for as Leone and Schultz (1980) stated, “the attempt to lay out what we know about marketing should be at least as important as our continual attempts to expand the boundaries of marketing theory”.

These five empirical generalisations are as follows:

1. The new product failure rate is between 35% and 45% of fully commercialised products launched in developed western economies.
2. This failure rate has remained constant throughout the 1960s, 1970s, and 1980s.
3. Greater advertising leads to higher sales during product launch.
4. The response of rivals plays a role in no more than 20% of NPD failures.
5. New products that have features that are innovative and unique, and that the consumer can easily recognise, have a better chance of success.

From the academic’s perspective, there is plenty of scope for continuing to build the NPD knowledge base. This paper offers a clue to direction, as with nine of the 12 statements we found a need for further evidence. The challenge is to continue to develop our knowledge in these areas to the point where we can establish empirical generalisations similar to the five above. The five established generalisations also offer scope for further research. As with all empirical knowledge, these generalisations will have boundary conditions, and identifying the conditions under which the generalisations do, and do not, hold is important to the growth of marketing knowledge (Wright and Kearns 1998).

This paper has shown that there are marketing principles in NPD, but not as many as there could be. Practitioners are aware of some of these principles, but not all. However, practitioners seem unable to distinguish between tautologies and empirical statements, and appear to be unaware of the results of much of the empirical research into NPD.

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