The Characteristics of Innovative, Mechanical Products—10 Years Later

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Ten years prior to this paper, innovative mechanical products were analyzed and found to embody multiple innovation characteristics—an average of two more than competing products in the marketplace. At the time, it was not known whether these products would be successful over time and whether the number or type of innovation characteristics would be related with success. In this work, products from the previous study were categorized into well- and under-adopted products. Also, each product was categorized according to the type of firm that launched it: a new venture or an established firm. The innovative products enjoyed a success rate of 77% on average. The success was not dependent on the number or type of innovation characteristics embodied by the product. However, products developed in new ventures embody, on average, one more innovation characteristic and enjoy a slightly higher success rate than those launched by established firms. [DOI: 10.1115/1.4039851]

Introduction

Ten years prior to this paper, Saunders et al. [1] identified a set of characteristics that describe innovative products. In particular, they found 13 characteristics of innovation that they divided into five higher level categories: functionality, architecture, external interactions, user interactions, and cost. The characteristics have proven useful for guiding innovation. Specifically, they have been used to help define or support types of innovation (e.g., see Refs. [2–5]), to measure the level of innovation [6], and to form a basis for idea generation [7]. The characteristics were derived by analyzing a large set of innovative, award-winning products; however, all of the award-winning products were newly launched when the analysis was conducted, making it impossible to predict definitively whether they would succeed in the marketplace or not. Ten years later, it is timely to investigate whether these innovations actually succeeded and whether there is a relationship between the innovation characteristics and product success.

Background

Innovation is an important factor in product development success, and engineering design plays a critical role in transforming technological advances into realized products [8–11]. A product's novelty or uniqueness to the firm, industry, or market has been a simple but popular characterization of product innovation [12,13], but it is often difficult for designers to determine how to introduce new products or features while keeping the product useful and relevant to its target market. The innovation characteristics are a higher fidelity description of novelty that can guide a designer toward designing particular features of a product.

Novelty does not guarantee innovation success, however. Many other factors are involved [14]. For example, new technology brings new risks and thus has both positive and negative effects on the commercial success of new products [15]. Also, contextual conditions, such as market competition and barriers to entry, greatly influence the future market success of innovative products [16]. In this technical brief, we focus on investigating whether there is a strong relationship between the innovation characteristics embodied by a product and its success in the marketplace, independent of these other factors.

When investigating this relationship, however, it is important to distinguish between different types of firms. Especially since the financial crisis in 2009, the contribution of entrepreneurial new ventures to innovation and economic growth has been increasingly discussed. Although the literature on innovation and product development is often focused on established firms, research has shown that organizational factors often make it difficult for established firms to deliver technology innovation [17,18], whereas new ventures can more nimbly explore new technologies and features for their products [19]. Although such viewpoints are not necessarily valid for all established firms [20], new ventures and established firms often innovate differently [21].

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Contributed by the Design Theory and Methodology Committee of ASME for publication in the Journal of Mechanical Design. Manuscript received November 6, 2017; final manuscript received March 20, 2018; published online May 28, 2018. Assoc. Editor: Irem Tumer.

Table 1 13 Innovation characteristics organized into five categories

Main category	Detailed subcategories and descriptions
Function	*Additional function*: Allows the user to solve a new problem or perform a new function addition to that of the comparison product
Architecture	*Modified size:* The physical dimensions during operation or storage have dramatically changed in expansion or compaction
	Modified physical layout: The same elements of the product are still present, but the physical architecture has changed
	Expanded usage physical environment: The product can now be used in more usage environments with different resource availability or different physical characteristics
External interactions	*Modified material flow:* Accepts or creates different materials or uses materials in new ways
	Modified energy flow: Utilizes new sources of energy or converts to a different form of energy than previously used
	Modified information flow: Different types or amounts of information are being gathered, processed, or output/displayed
	Interaction with infrastructure: The product interacts with previously owned infrastructure
User interactions	*Modified physical demands:* The product is easier to use physically beyond subtle or incremental differences
	Modified cognitive demands: The product is easier to use from a sensory standpoint beyond subtle or incremental differences
	Modified mental demands: The product is easier to use mentally beyond subtle or incremental differences
Cost	*Purchase cost:* Purchase cost is significantly different
	Maintenance cost: Maintenance cost is significantly different

New ventures that successfully design innovative features into their products and services, especially in the first 2 years after company inception, enjoy a much higher chance of growth and development [22]. Even though the relationship between firm size and innovation may differ by industry [23–25], Acs and Audretsch [26] and Stock et al. [27] found a negative relationship between firm size and innovation in general. Similarly, Criscuolo et al. [25] find that the benefits from innovation may be greater for new ventures when compared to established firms [25,28]. Therefore, the background literature suggests that there could be differences in the innovation capabilities of new ventures versus established firms.

Accordingly, two research questions are investigated. The first investigates the innovation characteristics embodied by mechanical products, but separates the analysis for new ventures versus established firms. The second investigates whether those characteristics are related to product success after 10 years in the marketplace for new versus established firms.

Research Question #1: Is there a difference in the number and type of innovation characteristics embodied by innovative products from new ventures versus established firms?

Next, the main question of interest is investigated:

Research Question #2: Did the innovative products succeed in the marketplace, and is that success related to the innovation characteristics embodied by the products and/or whether they are introduced by new ventures versus established firms?

Data and Method

This paper builds on the original research by Saunders et al. [1], who studied a sample of 197 award-winning mechanical products and identified the characteristics of innovation embodied in them. These products were selected from Time magazine's "Inventions of the Year," Popular Science magazine's "Best of What's New," and the Industrial Designers Society of America's "International Design Excellence Awards (IDEA)" between 2003 and 2008. Results showed that, on average, the innovative products exhibited three characteristics of innovation when compared to non-award-winning products available in the market. In this paper, we gather additional data on the success of the award-winning products and the growth of the companies that developed them, now that these products and companies have experienced approximately 10 years of development from the original dataset [1].

Framework to Measure Innovation Via Characteristics. Saunders et al. [1] evaluated the innovativeness of mechanical products in five categories: functionality, architecture, external interactions, user interactions, and cost. Each of these categories includes up to four detailed innovation characteristics, forming thirteen innovation characteristics in total as shown in Table 1. The framework characterizes the innovation embodied in a product by counting the number of different innovation characteristics embodied by the product, i.e., the number of characteristics for which the product presented a unique or novel feature compared with the set of competing products in the market. This measure identifies the specific technical dimensions in which a product is innovative with respect to existing dominant designs [29–31], as illustrated in the following example, but additional examples and explanations are available in the original paper [1].

The Jawbone headset in Fig. 1 was originally developed by Aliph, a company started by two undergraduates from Stanford University, to develop noise-canceling technology for the U.S. military, but it was subsequently offered to the consumer market as a wireless mobile phone headset. When the headset was first released, the *additional function* of adaptive noise cancelation quickly differentiated this product from other competing wireless telephone headsets in the market with higher audio quality. It also provided an *expanded user environment*, as the user could make clear phone calls in a noisy environment. The twofold benefit, as a quality earplug for music and a powerful headset for phone calls, enabled *modified sensory demands* by making it easier to hear the audio above the background noise. It presented *modified energy flow* because one of the sensors detects vibrations from human speech through the speaker's bones as opposed to detecting sound traveling through air. During operation, it possessed a *modified information flow* by collecting and processing sound from the specially designed sensor placed against the user's cheek and from another normal voice sensor and processing it to adaptively cancel the noise. Despite the special technology, it was compatible with a line of cellular phones at launch, which enables *interactions with infrastructure*. In total, the Jawbone headset presented six characteristics of innovation.

Product Success. To evaluate the success of each award-winning product in the marketplace over the past 10 years, each

Fig. 1 Example of an innovation award-winning product: The Jawbone headset (photo by Robert Schlatter and Yves Behar, Fuseproject)

product is categorized into *well-adopted* versus *under-adopted* categories based on public and online information. We use the product life cycle model by Anderson and Zeithaml [32] as a guide. Accordingly, if a product is a market leader, followed with imitators, or currently reaching established maturity in the marketplace, it is identified as well adopted. For example, the above-introduced Jawbone headphones still sell well, and many imitators or followers have entered the market as well. Other well-adopted examples by new ventures include Gorilla tape and the Nemo inflatable tent. Well-adopted examples produced by established firms include the iPhone, Nintendo Wii, and Cub Cadet zero turn tractor. In contrast, a product that is still struggling for market entry or quickly became extinct from the marketplace is identified as an under-adopted product. The Charge 2 Go portable cell phone charger, developed by Charge 2 Go, Inc. (Lakewood Township, NJ), which used an AA battery for power, is an example of an under-adopted product overtaken by newer inexpensive portable power banks. Similarly, Microsoft (Redmond, WA) MSN Direct Watch, an early but bulky smart watch, was a well-publicized failure that was discontinued in 2009.

Identification of New Ventures and Established Firms. The parent companies were classified into new ventures and established firms. A company is initially identified as a *new venture* if it was newly established, small in company size, and insignificant in market share at the time of winning the award, including Aliph (San Francisco, CA), Oliso (San Francisco, CA), and Zink Imaging (Edison, NJ) in our sample. Meanwhile, a company is identified as an *established firm* if it owned an established brand name and major market share at the time of winning the award, such as Nike (Beaverton, OR), Dell (Round Rock, TX), and 3M (Maplewood, MN) in our sample.

Figure 2(*a*) demonstrates the cumulative histogram of parent companies by company age, which spans from 0 to 160 years on the vertical axis. An excerpt is plotted in Fig. 2(*b*) for parent companies with ages under 15 years. A clear separation is observed at the age of 8 years, which we utilized as a natural division between new ventures and established firms. We further investigated the individual companies at the ages of 7, 8, 9, and 10 years and confirmed this separation between new ventures and established firms. In one exceptional case, we classified a 6-year-old company as an established firm, as the venture was a spin-off, founded with human and capital resources provided by the founders' previous employer as a large multinational firm. Any company that was difficult to classify according to the above criteria was excluded from our analysis. Accordingly, of the original 197 products, 32 were excluded from this study, resulting in an analysis of 165 products designed by 111 unique firms, including 42 products from 41 new ventures and 123 products from 70 established firms (see Appendix).

Company Success. The companies were also categorized as well-developed versus under-developed, based on public and online information. We used the five stages of small business growth [33] as a guide. While the established firms are, by definition, well developed before launching the product, the status of a new venture at the time of winning the award needs to be evaluated. The new ventures with formal management structure, well-accumulated company resources, clear evidence of a technology roadmap and expanding product lines are empirically identified as well developed. On the contrary, other new ventures that failed to show these key attributes (e.g., still struggling on the border of survival or existence after years of development) are identified as under-developed. The limited product line of new ventures, which often start with a single product, may determine a strong correlation between the new venture's product adoption and company growth.

Results

Company Success

Number of Innovation Characteristics per Firm Type. We first computed the average number of innovation characteristics exhibited by each product according to firm type (Fig. 3), and found those developed by new ventures presented an average of 3.81 innovation characteristics per product, versus those developed by established firms with an average of only 3.03 innovative characteristics. A *t*-test shows the difference is statistically significant

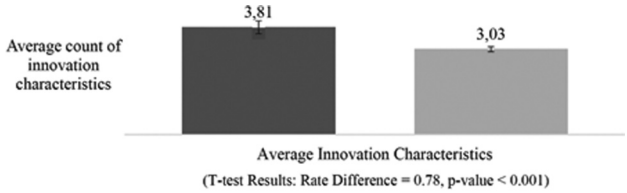
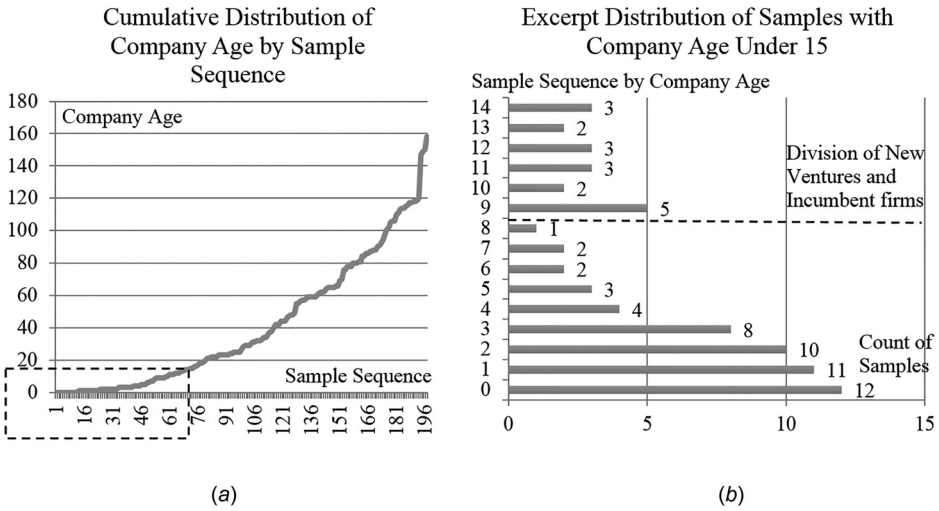


Fig. 3 Average number of innovation characteristics exhibited by innovation award-winning products from new ventures versus established firms, with error bars



(*a*) (*b*)

Fig. 2 (*a*) Cumulative distribution of the original 197 products' company age by sample sequence and (*b*) an excerpt distribution of samples with company age under 15, where 8 years forms a natural division between new ventures and established firms

with a p-value less than 0.01 assuming unequal variance [34]. Further investigations to control for other nontechnical factors, such as award sources (time, popular science, or IDEA) and product's launch year (2003–2008), found no significant effect on the results. This difference suggests that products from new ventures attack a wider range of innovation characteristics than those of established firms. It is possible that the new ventures need to exhibit more innovation to break into the marketplace or gain the same level of public recognition as an innovative product from an established firm with well-established branding, marketing, and distribution channels. An example of the extent to which many new ventures embody innovation characteristics in their products is the Jawbones headset described previously. In contrast, products from established firms, such as the Wii Fit, only need to distinguish themselves from previous offerings, in this case by adding novel gesture and user position based interface to a well-established product line.

Differences in Categories of Innovation Characteristics Between Firm Types. We next investigated whether new ventures and established firms focus on different categories of innovation characteristics. As shown in Table 2, for each innovation category, there is no statistically significant difference between the average numbers of new venture products versus established firm products embodying that innovation characteristic. This result indicates that product innovativeness is distributed similarly across all categories of innovation characteristics, regardless of company type.

We also compared products from both types of firms against the 13 subcategories of innovation characteristics. As shown in Table 3, there are still no significant differences observed in the subcategories of innovation characteristics between products from both company types. Overall, the most exhibited innovation characteristics are *modified physical demands, modified energy flows,* and additional functions with about 15%, 13%, and 10% on average, respectively. The least exhibited innovation characteristics are *purchase cost, maintenance cost,* and *modified material flows* with a total of 6% on average. These statements are true regardless of company type. This detailed comparison adds some nuance to the previous discussion, which indicated that new ventures tend to market award-winning products with more innovation characteristics than well-established firms. This additional analysis indicates that although the number of characteristics may differ on average, the distributions of types of characteristics do not differ in general between new ventures versus established firms.

Product and Company Success

Product Success. As shown in Table 4, of the 165 award-winning products, 127 products are categorized as well-adopted, while the remaining 38 are under-adopted. The success rate for new venture products is 90% versus 72% for products from established firms. These success rates are very high relative to typically reported product success rates in the range of 10–47% [35,36]. The high success rate could be attributed to the number of embodied innovation characteristics (3 on average) or simply their status as innovation award winners.

Further, we wished to investigate whether the number of innovation characteristics exhibited by products differs for well- and under-adopted products. For the well-adopted products (middle column of Table 5), the average number of innovation characteristics embodied in each product from a new venture (3.84 characteristics on average) is higher than that of the products from established firms (2.99 characteristics on average). A t-test shows

Table 2 Statistical test for the main categories of innovation characteristics embodied in 42 products from new ventures and 123 products from established firms

	Average rate		Percent		t-test on percent	
Main category of innovation characteristics	New venture products	Established firm products	New venture products (%)	Established firm products (%)	Difference (%)	p-value
Function	0.40	0.37	9.76	11.46	−1.70	0.485
Architecture	0.98	0.84	24.46	27.62	−3.16	0.472
External interactions	1.26	0.99	33.79	33.10	0.69	0.846
User interactions	0.95	0.76	27.58	26.04	1.54	0.679
Cost	0.21	0.07	4.40	1.78	2.62	0.062

Table 3 The innovation characteristics embodied by 42 products from new ventures and 123 products from established firms

Innovation characteristics		Average rate		Percent		t-test	
Main category	Subcategories	New venture products	Established firm products	New venture products (%)	Established firm products (%)	Difference (%)	p-value
Function	Additional function	0.40	0.37	9.76	11.46	−1.70	0.485
Architecture	Modified size	0.31	0.22	8.14	7.26	0.88	0.725
	Modified physical layout	0.31	0.38	8.14	12.54	−4.40	0.130
	Expanded usage environment	0.36	0.24	9.45	7.92	1.53	0.637
External interactions	Modified material flow	0.12	0.10	3.15	3.30	−0.15	0.658
	Modified energy flow	0.52	0.41	13.65	13.53	0.12	0.881
	Modified information flow	0.36	0.32	9.45	10.56	−1.11	0.832
	Interaction with infrastructure	0.26	0.17	6.82	5.61	1.21	0.543
User interactions	Modified physical demands	0.62	0.45	16.27	14.85	1.42	0.827
	Modified sensory demands	0.19	0.15	4.99	4.95	0.04	0.591
	Modified cognitive demands	0.14	0.15	3.67	4.95	−1.28	0.685
Cost	Purchase cost	0.02	0.02	0.52	0.66	−0.14	0.497
	Maintenance cost	0.19	0.05	4.99	1.65	3.34	0.054

Table 4 The level of adoption of award-winning products versus the type of company that developed the products

Sample products		New venture products	Established firm products	Total
Product adoption	Well-adopted	38 (90%)	89 (72%)	127 (77%)
	Under-adopted	4 (10%)	34 (28%)	38 (23%)
Total		42	123	165

Table 5 The number of innovation characteristics embodied by well-adopted and under-adopted products compared to all products

	Total products		Well-adopted products		Under-adopted products	
	N	Avg. rate of innovation characteristics	*N*	Avg. rate of innovation characteristics	*N*	Avg. rate of innovation characteristics
New venture products	42	3.81	38	3.84	4	3.52
Established firm products	123	3.03	89	2.99	34	3.13
All products	165	3.23	127	3.24	38	3.20

Table 6 Companies divided into well and under-developed firms for both new ventures and established firms

Sample companies		New ventures	Established firms	Total
Company Growth	Well-developed	36 (88%)	68 (97%)	104 (94%)
	Under-developed	5 (22%)	2 (3%)	7 (6%)
Total		41	70	111

Table 7 Company and product success for both new ventures and established firms

Company	Product	New ventures	Established	All
Well-developed	Well-adopted	35 (83%)	89 (72%)	124 (75%)
Well-developed	Under-adopted	2 (5%)	32 (26%)	34 (21%)
Under-developed	Well-adopted	3 (7%)	0 (0%)	3 (2%)
Under-developed	Under-adopted	2 (5%)	2 (2%)	4 (2%)

that this difference is statistically significant with a p-value less than 0.01 assuming unequal variance. Due to the low number of under-adopted products from new ventures, the analysis was not repeated for under-adopted products. However, the last row of Table 5 shows that the combination of successful and unsuccessful sample products embodied the same average number of innovation characteristics as that of the well-adopted products alone, regardless of company type. These results indicate that the level of innovation may not be the only determinant of product success, since both nonsuccessful and successful products embodied similar numbers of innovation characteristics.

Company Success. Most firms in the sample developed well in the 10 years since the first analysis. Of the 41 new ventures, 36 are categorized as well-developed, and the remaining 5 are under-developed (Table 6). Note that only 2 of the 70 established firms in the sample are categorized as "under-developed" as they went out of business and eventually filed bankruptcy. This result is unsurprising since the firms were well established already at the time of the first analysis. Due to the low number of failed established firms, only the company growth of new ventures is analyzed.

When product and company success are investigated simultaneously (Table 7), it is apparent that most well-adopted products come from well-developed companies. For established firms, this trend is expected as they were established already at the time of the product launch. Of the 38 successful products from new ventures (in Table 4), the new ventures that developed 35 of them also grew successfully; only three successful products were from new ventures that later failed. For new ventures, this result shows a strong relationship between product and company success.

Conclusion and Discussion

This work investigates whether the innovative products studied by Saunders et al. [1] succeeded in the market 10 years later and whether the level of success is different for new ventures versus well-established firms. The products enjoyed a very high rate of success (77%), considerably higher than typically reported product success rates in the range of 10–47% [35,36]. The higher than average rate is not necessarily a surprise since the original set of products was selected for award-winning innovation; however, there was no guarantee of market success at the time the awards were issued and the original study was conducted.

The product success rate was different for new ventures and established firms. The products in our data set launched by a new venture enjoyed a success rate of 90% compared to a 72% success rate for products launched by established firms. Although established firms may be expected to exhibit greater product success rates on average, these findings do not necessarily contradict that expectation. The new ventures included in this analysis earned enough recognition in the marketplace to earn major innovation awards; so, they are not typical new ventures and most likely do not represent the product success rates of new ventures on average.

The new ventures also, according to our results, included on average one more innovation characteristic in each product offering. However, the number of innovation characteristics alone was not found to be a statistically significant predictor of product success. This implies that designers in new ventures may need to aim for more innovation characteristics to distinguish their products from others in the marketplace, but maximizing the number of innovation characteristics may not be necessary for an innovative and successful product.

While we found that products from new ventures significantly present at least one more innovation characteristic than those from established firms, the types of innovation on which they focus are the same. Innovative products from both types of companies are similarly focused on the categories of architecture, external

interactions, and user interactions. While the literature has presented many reasons for new ventures and established firms to be different, our results suggest there is no difference in the focal area of innovation between new ventures and established firms when pursuing innovation as the lever for product advantage.

These results are somewhat surprising, as they seem to contradict some of the literature that argues that new ventures should focus on different categories of innovation than those of established firms. For example, Christensen et al. [30] suggested new ventures should focus their innovation on areas such as ease of use and lowering user cost, since established firms tend to relatively deemphasize or ignore such innovation categories. On the other hand, the results support the finding of Pla-Barber and Alegre [24] who find no link between innovation and firm size.

Linking product innovation to market adoption and company growth, our analysis provides evidence that innovation is highly related to product success for new ventures, with extraordinarily high levels of success among new ventures that introduce award-winning products. There is also a high correlation between the market success of award-winning products and the success of the new venture. A relatively smaller percentage of award-winning products from established firms were successful in the marketplace; however, more data are needed to make definitive comparisons between new ventures and established firms because so few award-winning products failed. Overall, the evidence suggests that award-winning products may pose less influence on the overall growth of the established firms, but more on the new ventures.

Limitations

This study focuses on award-winning innovative products, rather than a general cross section of new products, and it focuses on those products that are successful in the marketplace. The results therefore only indicate what can lead to product success, rather than what could prevent failure. Future research should analyze more general product samples that allow for the study of failures.

Acknowledgment

The authors wish to acknowledge the support provided by the SUTD-MIT International Design Centre (IDC).[2] Any opinions, findings, or recommendations are those of the authors and do not necessarily reflect the views of the sponsors or collaborators.

Appendix: List of the 165 Innovative Products Analyzed

Product	Company	Award	Award year
Neurosmith Musini	Neurosmith	IDEA	2003
Compaq TC 1000 Tablet PC	Hewlett-Packard Company	IDEA	2003
Logitech Cordless Presenter Blue Tooth	Logitech International S.A.	IDEA	2003
Evenflo Triumph Convertible Car Seat	Evenflo Company, Inc.	IDEA	2003
Clorox ReadyMop	The Clorox Company	IDEA	2003
Briva	Whirlpool Corporation	IDEA	2003
Rubbermaid Stir Stick	Newell Rubbermaid Inc.	IDEA	2003
Garden groom safety hedge trimmer	Garden Groom Ltd.	Pop Sci	2003
MSN Direct Watch	Microsoft Corporation	Pop Sci	2003
Oceanic integrated diver display mask	Oceanic Worldwide	Pop Sci	2003
Samsung Duocam scd-5000	Samsung Electronics	Pop Sci	2003
Bushnell instant replay	MidOcean Partners	Pop Sci	2003
Epson Stylus photo 960	Seiko Epson Corporation	Pop Sci	2003
HP Photosmart 245	Hewlett-Packard Company	Pop Sci	2003
Pioneer dvr-810H	Pioneer Corporation	Pop Sci	2003
Craftsman Reflex adjustable wrench	Sears Holdings Corporation	Pop Sci	2003
Festool CDD 12 FX	Festool GmbH	Pop Sci	2003
Sharp wireless Aquos	Sharp Corporation	Pop Sci	2003
Yamaha Musiccast	Yamaha	Pop Sci	2003
ClearBlueHawaii Napali kayak	Clear Blue Hawaii	Time	2003
Aqua Sphere Radio Snorkel	AMPHICOM	Time	2003
Bang and Olufsen beolab 5	Bang & Olufsen	Time	2003
Gibson digital guitar	Gibson Guitar Corporation	Time	2003
CD-Rom Shredder	Royal Supply	Time	2003
Belkin TuneDok	Belkin International, Inc.	IDEA	2004
Logitech KeyCase	Logitech International S.A.	IDEA	2004
Logitech diNovo Media Desktop	Logitech International S.A.	IDEA	2004
Artist's BrushMate	Gordon Products Ltd.	IDEA	2004
HP Scanjet 4670	Hewlett-Packard Company	IDEA	2004
Moviebeam Receiver	The Walt Disney Company	IDEA	2004
Toughbook CF-18	Panasonic Corporation	IDEA	2004
Vicks Underarm Thermometer	Procter & Gamble	IDEA	2004
DeWalt 735 Heavy Duty 13" Thickness Planer	Stanley Black & Decker	IDEA	2004
Flybar 1200	Flybar, Inc.	Pop Sci	2004
Enlux LED flood	enLux Lighting	Pop Sci	2004
Sonos Digital Music System	SONOS, Inc	Pop Sci	2004
Logitech Quickcam Orbit	Logitech International S.A.	Pop Sci	2004
Photosmart HP R707	Hewlett-Packard Company	Pop Sci	2004
HP Lightscribe Labeling system	Hewlett-Packard Company	Pop Sci	2004
TaylorMade R7 Quad Driver	Adidas	Pop Sci	2004
UVEX f1 Magic Goggles	UVEX Winter Holding GmbH und Co. KG	Pop Sci	2004
Maytag Neptune drying center	Whirlpool Corporation	Pop Sci	2004
Nintendo DS	Nintendo	Pop Sci	2004
Skil Xhop table saw	Robert Bosch GmbH	Pop Sci	2004

[2]https://idc.sutd.edu.sg/

Appendix *Continued*

Product	Company	Award	Award year
Bosch Direct Connect circular saw	Robert Bosch GmbH	Pop Sci	2004
Violight toothbrush sanitizer	Violife Inc.	Time	2004
Solo Personal Ski Machine	Pacific Watercraft Group, Inc.	Time	2004
D-skin	d_skins	Time	2004
Jetboil personal cooker	Jetboil, Inc.	Time	2004
Jawbone	Jawbone	Time	2004
Nike Swift strapless goggles	Nike	Time	2004
Adidas 1	Adidas	Time	2004
Hammerhead Sled	Hammerhead Sleds	IDEA	2005
IRIVER IFP1000 MP3 Player & Digital Camera	ReignCom	IDEA	2005
Alienware ALX	Dell	IDEA	2005
Intuos3	Wacom Co., Ltd.	IDEA	2005
iPod Shuffle	Apple Inc.	IDEA	2005
Airport Express	Apple Inc.	IDEA	2005
Safety 1st Perfect Fit Gate	Dorel Industries Inc.	IDEA	2005
K2 T1 Boot with Boa Liner	Jarden Corporation	IDEA	2005
Moen Revolution Showerhead	Fortune Brands Home & Security	IDEA	2005
Tupperware Flat Out Containers	Tupperware	IDEA	2005
Sony QUALIA016 Digital Camera	Sony Corporation	IDEA	2005
Hullavator Vehicle Roof Rack System	The Thule Group	IDEA	2005
BRP/BV2S Helmet	Bombardier Recreational Products	IDEA	2005
HP Photosmart 375 Portable Printer	Hewlett-Packard Company	IDEA	2005
Gerber SippySnacker	Nestlé S.A.	IDEA	2005
Timberland Travel Gear	Timberland LLC	IDEA	2005
Whirlpool® Fabric Freshener	Whirlpool Corporation	IDEA	2005
Rubbermaid Paint Buddy	Newell Rubbermaid Inc.	IDEA	2005
Siemens ultraSense laundry system	Siemens AG	IDEA	2005
Charge 2 Go	Charge 2 Go, Inc.	Pop Sci	2005
360 electrical duplex outlet	360 Electrical, LLC	Pop Sci	2005
Razer Copperhead	Razer	Pop Sci	2005
Apex fitness bodybug	24 Hour Fitness USA, Inc.	Pop Sci	2005
First alert onelink alarm	Jarden Corporation	Pop Sci	2005
HP Photosmart 475 gogo	Hewlett-Packard Company	Pop Sci	2005
Panasonic ey7202gqw	Panasonic Corporation	Pop Sci	2005
Sleeptracker	Innovative Sleep Solutions, LLC	Time	2005
Slingbox	Sling Media, Inc.	Time	2005
Nemo inflatable tent	Nemo	Time	2005
ELI (Can you hear me now)	Starkey Laboratories	Time	2005
One-time-use video recorder	CVS Caremark Corporation	Time	2005
Lifestraw	Vestergaard Frandsen	Time	2005
Playstation Portable	Sony Corporation	Time	2005
Ergodex dx1	Ergodex	IDEA	2006
SanDisk Ultra II SD PLUS	SanDisk Corporation	IDEA	2006
2 seconds quechua	Decathlon Group	IDEA	2006
LG AN110	LG Corporation	IDEA	2006
Timberland PreciseFit system	Timberland LLC	IDEA	2006
Backup-pal	backup-pal	Pop Sci	2006
XO 100 laptop	One Laptop per Child	Pop Sci	2006
d3o ribcap	Ribcap	Pop Sci	2006
Gorilla tape	Gorilla Glue, Inc.	Pop Sci	2006
Gremlin	SanDisk Corporation	Pop Sci	2006
Navman icn 750 gps	MiTAC International Corp.	Pop Sci	2006
Dell xps m2010	Dell	Pop Sci	2006
Belkin cable-free usb hub	Belkin International, Inc.	Pop Sci	2006
Logitech mx revolution	Logitech International S.A.	Pop Sci	2006
Gregory Escape backpack	Black Diamond, Inc.	Pop Sci	2006
Nike+	Nike	Pop Sci	2006
LG Electronics steamwasher	LG Corporation	Pop Sci	2006
Sony Reader PRS-500	Sony Corporation	Pop Sci	2006
Bostitch Hurriquake Nail	Robert Bosch GmbH	Pop Sci	2006
Nintendo Wii	Nintendo	Pop Sci	2006
Kodak Easyshare v570	Eastman Kodak Company	Pop Sci	2006
Stanley® FatMax® Xtreme™ FuBar™	Stanley Black & Decker	Pop Sci	2006
Sawstop	Sawstop	Time	2006
Oliso iron	Oliso	Time	2006
Loc8tor	Loc8tor Ltd.	Time	2006
Nike Sphere Macro React	Nike	Time	2006
MoGo Mouse BT	Newton Peripherals	IDEA	2007
AUTOSEAL™ Travel Mug	Ignite USA, LLC.	IDEA	2007
Belkin Compact Surge Protector	Belkin International, Inc.	IDEA	2007
PalmPeeler	Chef'n Corporation	IDEA	2007
MaxLife TriPod Flashlight	Stanley Black & Decker	IDEA	2007

Appendix *Continued*

Product	Company	Award	Award year
Oliso Frisper	Oliso	Pop Sci	2007
Naturemill automatic composter	Naturemill	Pop Sci	2007
XM Xpressrc	Sirius XM Radio Inc.	Pop Sci	2007
Directv Sat-go	DirecTV, LLC	Pop Sci	2007
Dell Latitude ATG D630	Dell	Pop Sci	2007
iPhone	Apple Inc.	Pop Sci	2007
Oral-B Triumph	Procter & Gamble	Pop Sci	2007
Samsung 3D Ready DLP HDTVs	Samsung Electronics	Pop Sci	2007
Infinitely geared bike	Recreational Equipment Inc.	Pop Sci	2007
Cub Cadet zero turn tractor	MTD Products Inc.	Pop Sci	2007
Volkl Tigershark ski	Jarden Corporation	Pop Sci	2007
Tag Heuer Aquaracer Calibre S chronograph	LVMH Moët Hennessy • Louis Vuitton S.A.	Pop Sci	2007
Wildcharger	Pure Energy Solutions	Time	2007
Lenovo ThinkPad	Lenovo Group Limited	Time	2007
Belkin N1 Wi-fi router	Belkin International, Inc.	Time	2007
FlyTech Dragonfly	Optimal Group Inc.	Time	2007
Yamaha YSP-1 Digital Sound Projector	Yamaha	Time	2007
Replug Breakaway Audio	Replug	IDEA	2008

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