

From OEM to OBM - A Case Study of Branding Taiwan

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Abstract. Recently, product design in Taiwan has entered the original brand manufacturer era, which involves the evolution of Taiwan design development. Taiwan is eager to transform its economic development to “branding Taiwan.” Based on previous studies and experience in Taiwan, this study proposes a conceptual framework to study Taiwan design development, which has transitioned from “use” to “user,” “function” to “feeling,” and “hi-tech” to “hi-touch.” Hence, this study aimed to provide designers, companies, and organizations with a design strategy that is tailored to the current market. The results are presented herein to provide an interface for examining Taiwanese design development across cultures and to illustrate the relationship between local design and the global market in Taiwan’s economy, industry, and design development.

Keywords: Branding Taiwan · Product design · OEM · ODM · OBM

1 Introduction

Taiwanese economic development is a fusion of design-technology (dechnology) and humanity-art (humart): from the original equipment manufacturer (OEM) to the original design manufacturer (ODM) to the original brand manufacturer (OBM). The OEM, ODM, and OBM stages reflect that Taiwanese design development is transitioning from “use” to “user,” “function” to “feeling,” and “hi-tech” to “hi-touch.” Recently, product design in Taiwan has entered the OBM era, which involves the evolution of Taiwanese design development. Taiwan is eager to transform its economic development to “branding Taiwan.”

In Taiwan, vendors have advanced their production technologies, and the market has become highly competitive. Product function and engineering design no longer give products advantages in the market. Invisible factors, including product aesthetics and symbolic attributes, have become the key factors that influence consumers’ decisions to purchase of certain brand products. Product design is critical for brand image; the product should be consistent with the brand image (Levy 1959; Davis 2000;

Wang et al. 2008). This trend shows that consumers are no longer content to satisfy ordinary daily needs and feel “longing” and “desire,” which are generated by admiration for a brand or product. The CEO of one of the world’s top ten brand marketing companies, Gobe (2009), stated that the current era is dominated by emotions. Consequently, brands should invest primarily in creating an appropriate emotional atmosphere for consumers. Gobe (2009) also mentioned that, in the twenty-first century, consumers and companies are on both ends of a market catalyzed by emotion, where emotion serves as the bridge that connects a brand to its products.

This study therefore focused on Taiwanese and global brands to investigate how the function, design, and feeling factors (the emotional atmospheres created by the products) of products affect various brands. Furthermore, this study evaluates the effects of various brands on the function, design and feeling factors (the emotional atmospheres created by the products) of products. Hence, this study aimed to provide designers, companies, and organizations with a design strategy that is tailored to the current market.

2 Background

To consumers, brand image represents product appearance. Consumers link product information with the brand. Products symbolize brands, and the brand summarizes consumer’s feelings toward products. Therefore, qualia product design can develop brand image (Keller 1993; Yen et al. 2014a, b). Product design is integral to a brand and a major driver of brand equity. Product design can drive consumer preferences and create a sustainable competitive advantage for a brand (Kumar et al. 2014). The current era values beauty, because beauty generates happiness, which encourages consumers to pursue aesthetic experiences.

People pursue beauty because beauty produces pleasure. Consumers desire to have their needs and wants satisfied by their experience of products (Lin 2013). This shows a transition into the era of user-centered product marketing, which conforms to Redstrom’s (2006) proposal that “user-centered design” is a relatively recent innovation. The feeling of happiness is imposed on a tangible object, giving people a sense of surprise and sensation. Emotional qualia are the phenomenological representations of the end products of appraisal processes. To consumers, qualia distinguishes one product from another. A product’s qualia is determined by its quality, including the attractiveness, beauty, and creativity rendered in the product’s external features. Therefore, a successful product design meets or exceeds the emotional needs of users beyond utility and quality (Bermond 2008; McLoone et al. 2012). Yen et al. (2014a, b) proposed that qualia products can support the future development and growth of an aesthetic economy. In other words, qualia products satisfy user’s needs for products to have practical function, appealing aesthetics, and the ability to emotionally connect with users.

Ashby and Johnson (2003) proposed that products have “psychology” and “physiology” and involve rational conditions for consumer use but do not lack emotional appeal. Norman (2004) published his classic article that identified how visceral design relates to appearances. Behavioral design relates to pleasure and effectiveness of

use. Reflective design involves the rationalization and intellectualization of a product. In the past, “production thinking” provided product function through technology that emphasized products’ “universal” and facilitated comfort. Currently, “design thinking” conveys product feelings through creativity and design that emphasizes products’ uniqueness and enhances happiness. Therefore, a design transition exists from “function to feeling” and “use to user” (Lin 2014). Based on the previously mentioned research, a user-centered course of the designer perception in this section of the function, design to feeling. Modern product design should not merely aim to satisfy the functional demands of consumers; it must also consider user experience.

The pioneers of design thinking postulated that innovations should start with a focus on desirability, but should ultimately satisfy three perspectives: human desirability, technical feasibility, and economic viability (Brown 2008; IDEO 2012). “Feasibility” indicates a product’s functionality; “viability” indicates what can be achieved with a product within a company’s sustainable business model, and “desirability” represents what people want or will eventually want, which is a product’s customer appeal. Therefore, the center of the design process is the intersection of technical feasibility, economic viability, and desirability regarding users. This intersection of OEM, ODM, and OBM can be applied for illustrating how to transform the local culture into a global market (Plattner et al. 2010; Lin 2014). Based on the previously mentioned research, the product be manufactured process of the maker perception in this section of technical feasibility, economic viability (product innovation), and desirability to users.

3 Research Method

3.1 Study Framework

The relationship between technology and humart, which were merged into a design framework to explore Taiwanese and global design development, was investigated in this study. Whether the function, design, and feeling factors (the emotional atmospheres created by the products) of products affected brands in Taiwan and globally was investigated.

The conceptual framework presented in this paper was used to study the trends in Taiwanese and global design and development from “use” to “user,” “function” to “feeling,” and “hi-tech” to “hi-touch.” Additionally, Taiwanese design development was explored, and the OEM, ODM, and OBM stages were identified to illustrate how to transform the local culture into a global market through adaptive design development in Taiwan. Three perspectives (user, designer, and maker) were also included in the conceptual framework, which included feelings regarding functional design and representatives of the desired course of the user, representatives of the user-centered course of the designer, and representatives of the OEM to OBM course of the maker. This paper proposes a design approach for branding Taiwan by using Taiwanese designs, which can be adopted by Taiwan in the future. Hence, this study aimed to provide designers, companies, and organizations with a design strategy that is tailored to the current market. Based on literature review, products’ were measured by brand

	Needs	Wants	Desires
User perception	Practical Function Quality	Aesthetics Qualia	Symbol Brand
Designer perception	Visceral Function	Behavioral Design	Reflective Feeling
Maker perception	Feasibility OEM	Viability ODM	Desirability OBM

Fig. 1. Study framework

performance in this study. The “use” to “user” was generated from product “qualia factors” that included practical function, aesthetics, and emotional connection (Lin 2014). The “function” to “feeling” was generated from “visceral level of emotional design” that included visceral, behavioral, and reflective (Norman 2004). The “hi-tech” to “hi-touch” was generated from “design thinking” that included feasibility, viability, and desirability (Brown 2008) (Fig. 1).

3.2 Research Process and Tools

Three steps were involved in this study: (1) screening domestic and international brands with manufacturing capabilities; (2) performing measurements to confirm the reliability and validity of the questionnaire before conducting the survey; and (3) conducting the formal survey.

Selection of brands and products: This phase consisted of the selection and filtering of the brands tested. Two steps were involved in this phase: (1) Because this study aimed to understand product function, design, and feeling factors (the emotional atmospheres created by the products) in the current market, 100 large companies in Taiwan and well-known international brands were referenced, and 50 brands with manufacturing capabilities were selected. (2) Expert groups were invited to perform investigations of brand familiarity, and the top 13 brands were selected, as shown in Table 1.

Measuring scales for product function, design, and feeling factors (the emotional atmospheres created by the products): In this study, the survey questions on the product function (need), design (want), and feeling (desire) factors were based on literature review. Each variable had six questions, as shown in Table 2. All the questions in Table 2 are the same as those in Table 3 but pertain to different measurement variables (Fig. 2).

Measuring scales for users, designers, and makers: In this study, the survey questions on user, designer, and maker perception factors were based on the literature

Table 1. Experimental subjects



review. Each variable had six questions, as shown in Table 3. All the questions in Table 3 are the same as those in Table 2 but pertain to different measurement variables.

Table 2. Variables of the product function, design and feeling questionnaire

Position		Measurement variables	Description of items	Theoretical sources	
1	The upper left cell	Product function (need)	PFU1	The product of this brand is easy to use	Yen et al. (2014a, b)
			PFU2	This brand has durable products	
4	The middle left cell		PFU3	The product of this brand has good appearance form	Norman (2004), Hsiao and Chen (2010)
			PFU4	The product of this brand has meticulous modeling structure	
7	The lower left cell		PFU5	This brand has a sophisticated production technology	Tzokas et al. (2004), Brown (2008)
			PFU6	The product of this brand has good quality	Slater et al. (2011), Brown (2008)
2	The upper middle cell	Product design (want)	PDE1	The product of this brand has a sense of design	Yen et al. (2014a, b)
			PDE2	The product of this brand uses materials with ingenuity	
5	The center cell		PDE3	The product of this brand is easy to understand	Norman (2004), Hsiao and Chen (2010)
			PDE4	The product of this brand can produce feelings of pleasure	
8	The lower middle cell		PDE5	The product of this brand has clear idea and meet customer needs	Khurana and Rosenthal (1998), Brown (2008)
			PDE6	The product of this brand has innovated	Slater et al. (2011), Brown (2008)
3	The upper right cell	Product feeling (desire)	PFE1	The product of this brand has the story	Yen et al. (2014a, b)
			PFE2	The product of this brand has the fashion sense	
6	The middle right cell		PFE3	The product of this brand contains some implications	Norman (2004), Hsiao and Chen (2010)
			PFE4	The product of this brand has attractive and memorable	Norman (2004), Ashby and Johnson (2003)
9	The lower right cell		PFE5	The product of this brand is differentiated and uniqueness	Ranscombe et al. (2012), Brown (2008)
			PFE6	The product of this brand has brand recognition	Brown (2008)

Table 3. Variables of the users perception, designers perception and makers perception

Position		Measurement variables	Description of items		Theoretical sources
1	The upper left cell	User perception	PFU1	The product of this brand is easy to use	Yen et al. (2014a, b)
			PFU2	This brand has durable products	
2	The upper middle cell		PDE1	The product of this brand has a sense of design	
			PDE2	The product of this brand uses materials with ingenuity	
3	The upper right cell		PFE1	The product of this brand has the story	
			PFE2	The product of this brand has the fashion sense	
4	The middle left cell	Designer perception	PFU3	The product of this brand has good appearance form	Norman (2004), Hsiao and Chen (2010)
			PFU4	The product of this brand has meticulous modeling structure	
5	The center cell		PDE3	The product of this brand is easy to understand	Norman (2004), Hsiao and Chen (2010)
			PDE4	The product of this brand can produce feelings of pleasure	
6	The middle right cell		PFE3	The product of this brand contains some implications	Norman (2004), Hsiao and Chen (2010)
			PFE4	The product of this brand has attractive and memorable	
7	The lower left cell	Maker perception	PFU5	This brand has a sophisticated production technology	Tzokas et al. (2004), Brown (2008)
			PFU6	The product of this brand has good quality	Slater et al. (2011), Brown (2008)
8	The lower middle cell		PDE5	The product of this brand has clear idea and meet customer needs	Khurana and Rosenthal (1998), Brown (2008)
			PDE6	The product of this brand has innovated	Slater et al. (2011), Brown (2008)
9	The lower right cell		PFE5	The product of this brand is differentiated and uniqueness	Ranscombe et al. (2012), Brown (2008)
			PFE6	The product of this brand has brand recognition	Brown (2008)

	Needs	Wants	Desires
User perception	1 PFU1. The product of this brand is easy to use. PFU2. This brand has durable products.	2 PDE1. The product of this brand has a sense of design PDE2. The product of this brand uses materials with ingenuity	3 PFE1. The product of this brand has the story PFE2. The product of this brand has the fashion sense
Design perception	4 PFU3. The product of this brand has good appearance form PFU4. The product of this brand has meticulous modeling structure	5 PDE3. The product of this brand is easy to understand PDE4. The product of this brand can produce feelings of pleasure	6 PFE3. The product of this brand contains some implications PFE4. The product of this brand has attractive and memorable
Maker perception	7 PFU5. This brand has a sophisticated production technology PFU6. The product of this brand has good quality	8 PDE5. The product of this brand has clear idea and meet customer needs PDE6. The product of this brand has innovated	9 PFE5. The product of this brand is differentiated and uniqueness PFE6. The product of this brand has brand recognition

Fig. 2. Tables 2 and 3 comparison chart

3.3 Preliminary Verification

Seventy undergraduates with a background in advertising and marketing were invited to participate in this study, and 63 valid questionnaires were returned. A 7-point Likert scale was used in the experiment, in which 1 point indicated that the sample did not have emotional appeal or did not look or feel comfortable, 4 points indicated that the sample was moderate in its emotional appeal or looked or felt fairly comfortable, and 7 points indicated that the sample possessed strong emotional appeal or looked or felt extremely comfortable. Confirmatory factor analysis was conducted using SPSS 22.0, and the results were as follows. Questionnaire reliability: A substantial interrater reliability of .95 ($p < .001$) was achieved by each dimension and the overall scale of the product function, design, and feeling questionnaire.

Questionnaire validity: The matrix of factor loadings of each question of the product function, design, and feeling questionnaire of the longitudinal 3×3 grid was greater than 0.85, and the variance explained for each dimension of the product function, design, and feeling questionnaire was greater than 85 %. The matrix of factor loadings of each question of the product function, design, and feeling questionnaire of the transverse 3×3 grid was greater than 0.80, and the variance explained for each dimension of the product function, design, and feeling questionnaire was greater than 80 %. The questionnaire reliability and validity are shown in Tables 4 and 5.

Correlation coefficient analysis: The Pearson product-moment correlation coefficients were computed to assess the relationship between each of the networks and variables ($N = 63$ for all tests; Tables 6 and 7).

Grouping analysis: Confirmatory grouping analysis of the official samples was performed during this stage. The brands' product function, design, and feeling, which

Table 4. The questionnaire reliability and questionnaire validity of longitudinal of 3 × 3 grid (N = 63).

Measurement variables	Items	Cronbach's α	Factor	Variance explained
Product function (need)	PFU1	0.984	0.933	92.691 %
	PFU2		0.971	
	PFU3		0.971	
	PFU4		0.953	
	PFU5		0.966	
	PFU6		0.982	
Product design (want)	PDE1	0.980	0.966	90.810 %
	PDE2		0.913	
	PDE3		0.964	
	PDE4		0.963	
	PDE5		0.969	
	PDE6		0.942	
Product feeling (desire)	PFE1	0.970	0.892	86.990 %
	PFE2		0.944	
	PFE3		0.967	
	PFE4		0.956	
	PFE5		0.963	
	PFE6		0.870	

Table 5. The questionnaire reliability and questionnaire validity of transverse of 3 × 3 grid (N = 63).

Measurement variables	Items	Cronbach's α	Factor	Variance explained
Users perception	PFU1	0.953	0.860	82.019 %
	PFU2		0.952	
	PDE1		0.971	
	PDE2		0.919	
	PFE1		0.837	
	PFE2		0.888	
Designers perception	PFU3	0.977	0.942	90.015 %
	PFU4		0.943	
	PDE3		0.953	
	PDE4		0.966	
	PFE3		0.930	
	PFE4		0.959	
Makers perception	PFU5	0.982	0.978	92.016 %
	PFU6		0.965	
	PDE5		0.974	
	PDE6		0.956	
	PFE5		0.963	
	PFE6		0.918	

Table 6. The matrix of correlation coefficients of longitudinal of 3 × 3 grid (N = 63)

	Mean	SD	1	2	3
1. Product function (need)	5.423	0.915	0.984		
2. Product design (want)	5.311	0.882	0.958 ^a	0.980	
3. Product feeling (desire)	5.178	0.894	0.892 ^a	0.957 ^a	0.970

^aLevel of significance is 0.01 (Two-tailed), Significantly related. Diagonal: Cronbach’s alpha

Table 7. The matrix of correlation coefficients of transverse of 3 × 3 grid (N = 63)

	Mean	SD	1	2	3
1. Users perception	5.280	0.899	0.953		
2. Designers perception	5.284	0.884	0.976 ^a	0.977	
3. Makers perception	5.348	0.871	0.965 ^a	0.987 ^a	0.982

^aLevel of significance is 0.01 (Two-tailed),Significantly related. Diagonal: Cronbach’s alpha



Fig. 3. Comparison of the overall average

constituted the major focus of our study, were investigated. This stage involved 208 participants, who were all familiar with the brands included in our study. If participants gave blank answers or omitted a high number of questions, their results were discarded. Ultimately, 203 valid results were obtained. Most of the participants were between the ages of 21 and 30 and had university degrees. Grouping analysis was conducted using SPSS 22.0.

4 Results and Discussion

Comparison of the overall average: A comparison of the overall average and a median average configuration were confirmed to construct the grouping, as shown in Fig. 3.

Comparison of the average of longitudinal and transverse 3 × 3 grids: The averages of the six questions of each longitudinal and transverse 3 × 3 grid were compared with one another for each brand. The highest score of the longitudinal 3 × 3 grid achieved a position with the highest score of the transverse 3 × 3 grid achieved a position. The location of each brand was determined at the intersection of the two positions, as shown in Tables 8 and 9 and Fig. 4.

Each cell of the 3 × 3 grid was compared with one another: Each cell of the 3 × 3 grid of two questions’ average was compared for each brand, and the highest score of the 3 × 3 grid achieved a position of each single one brand, as shown in Figs. 5 and 6.

Table 8. The average of each brand of transverse of 3 × 3 grid.

Brand	Function (Need)	Design (Want)	Feeling (Desire)
ASUS	4.98***	4.78***	4.51***
Tatung	5.47***	5.02***	5.09***
IKEA	5.50***	5.83***	5.57***
ACER	4.97***	4.76***	4.56***
PHILIPS	5.30***	5.03***	4.84***
HTC	5.20***	5.17***	5.04***
MUJI	5.88***	5.95***	5.87***
Giant	6.04***	5.68***	5.57***
Apple	6.09***	6.13***	6.21***
Franz	5.58***	5.51***	5.61***
Sony	5.76***	5.49***	5.39***
Alessi	5.25***	5.29***	5.31***
BenQ	4.82***	4.57***	4.44***

Table 9. The average of each brand of transverse of 3 × 3 grid.

Brand	User perception	Designer perception	Maker perception
ASUS	4.70***	4.67***	4.90***
Tatung	5.16***	5.08***	5.35***
IKEA	5.643***	5.62***	5.644***
ACER	4.702***	4.700***	4.89***
PHILIPS	5.02***	4.98***	5.18***
HTC	5.088***	5.089***	5.23***
MUJI	5.88***	5.90***	5.91***
Giant	5.73***	5.71***	5.85***
Apple	5.98***	6.13***	6.31***
Franz	5.44***	5.59***	5.67***
Sony	5.45***	5.53***	5.65***
Alessi	5.29***	5.18***	5.37***
BenQ	4.58***	4.55***	4.71***



Fig. 4. The location of each brand

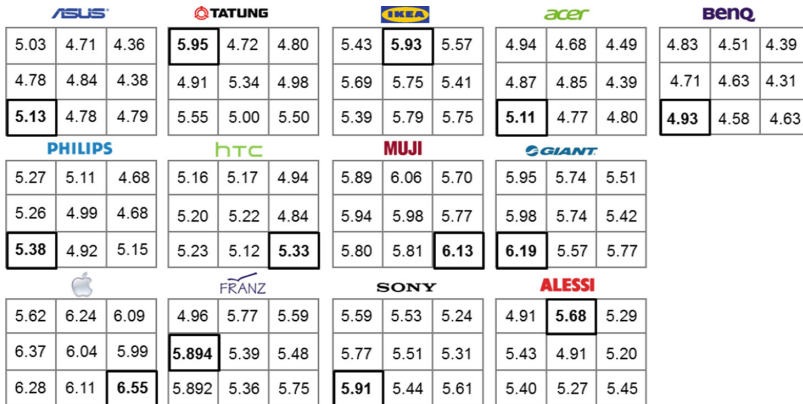


Fig. 5. Each cell of 3 × 3 grid of two questions' average compared each other of every single one brand.














	Needs	Wants	Desires
User angle	PFU1. The product of this brand is easy to use. PFU2. This brand has durable products. 	PDE1. The product of this brand has a sense of design PDE2. The product of this brand uses materials with ingenuity  	PFE1. The product of this brand has the story PFE2. The product of this brand has the fashion sense
Design angle	PFU3. The product of this brand has good appearance form PFU4. The product of this brand has meticulous modeling structure 	PDE3. The product of this brand is easy to understand PDE4. The product of this brand can produce feelings of pleasure	PFE3. The product of this brand contains some implications PFE4. The product of this brand has attractive and memorable
Maker angle	PFU5. This brand has a sophisticated production technology PFU6. The product of this brand has good quality      	PDE5. The product of this brand has clear idea and meet customer needs PDE6. The product of this brand has innovated	PFE5. The product of this brand is differentiated and uniqueness PFE6. The product of this brand has brand recognition   

Fig. 6. The position of each single one brand

5 Conclusion

This study reached three conclusions.

- (1) Taiwanese brands were in the high-, medium-, and low-scoring groups compared to the overall average. The inclusion of a Taiwanese brand in the high-scoring group indicated that Taiwanese brands have become global.
- (2) The Taiwanese brands, except Franz, were in the OEM (function) cell of the 3 × 3 grid compared to the longitudinal and transverse 3 × 3 grids. In addition, the functional characteristics of the 3C brands, except Apple, were found to be significant; the household brands' (MUJI, IKEA) design characteristics were found to be significant; the decorative brands' (Franz, Alessi) feeling characteristics were found to be significant but Franz's feeling characteristics.
- (3) Most Taiwanese brands were in the OEM (function) cell of the 3 × 3 grid based on a comparison of the results of each 3 × 3 grid. The Taiwanese brands had sophisticated production technology, and the products were of high quality. Among the Taiwanese brands, HTC had particular uniqueness and brand recognition among consumers.

Through the previous results and the distributions of brands in the study framework, the global position of Taiwan's brands can be compared with those of global brands. The results were presented herein to provide an interface for examining Taiwanese design development across cultures and illustrate the relationship between local design and the global market in Taiwan's economy, industry, and design development. The power of innovation inspires designers and managers to develop successful new products and services. For designers, the product is the most direct medium connecting the designer and the consumer, and the designer's creativity must be transferred through product design to consumers. For managers, successful innovative products should have clear and definite properties and target markets. An innovative product is commercially successful only when it is accepted by consumers in quantities sufficient to return a satisfactory profit to the manufacturer.

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