CHAPTER 4: DISCUSSION AND CONCLUSION

Introduction to Chapter 4

Chapter 3 describes the results of the fieldwork research on both the company and customer perspectives. It is particularly focusing on the identification of key success factors of the innovative products at the product level.

Chapter 4 illustrates the discussion and conclusion of the research results. The following sections are:

Section 4.1 describes the discussion of the research results on key success factors of the innovative products on both company and customer perspectives.

Section 4.2 concludes the whole research results according to the research objectives.

Section 4.3 describes the recommendations for future research

4.1 Research Discussion

Product Innovation Approach

According to the histories of the four selected companies as shown in Section 3.1, they have different approaches on their innovative products. Bathroom Design visions their products on the global market in the future. It implements innovation policies, not only focusing on design, but also technology, function and new material, to become one of the five global leading bathroom companies. PlanToys, Osisu and Yothaka have adopted 'design' as the key business strategy for their product innovation.

Regarding the innovative product characteristics, PlanToys focuses on kids as the first priority in the development of its products. Product-oriented approach is the key product characteristics of Bathroom Design, Osisu and Yothaka.

Regarding the management of new product development as shown in Table 3.1, each company has different approach in new product development process. Bathroom Design and Plan Toys implement multidisciplinary design team in the design and development process. Osisu and Yothaka implement designer approach. Designers are leading the design and development of innovative products. In all companies, product approval is done by the business owner or Top Management team.

As shown in Table 3.2, PlanToys and Yothaka have not set the pre-identified critical success factors. They reflected their experience at the business and process level. PlanToys mentioned on the issues of individual/team potential, ideas and working process. Yothaka focuses on a variety of product choices, customers' feedback and orders, and pay attentions to commercial and product details. Bathroom Design implemented four practices to identify the success: fitting with the brand principles (innovative design, function, material and technology), key performance indicators (i.e. ISO standard), innovative solutions approval by all teams and the decision

making based on innovation condition only. Osisu reflected the success at the product level, i.e. good proportion, aesthetics, material type and function.

As shown in Table 3.3, two key indicators are commonly used to identify the success of innovative products driven by design, i.e. market sales and good design awards. According to Osisu, the success of innovative products is based on their useful applications of waste material and the consumers' usage. Bathroom Design points out opposite view on these indicators that the nature of innovative products cannot sell well. The innovative products are seen as prototype in this company. Therefore, sale record and received awards cannot be the good indicators.

As shown in Table 3.4, two main factors make successful differ from un/less successful innovative products, i.e. product and business. Regarding the product factor, Osisu mentioned material applications and design style. Yothaka mentioned design product and lack of product differentiation, excitement and material production could cause un/less successful innovative products. Regarding the business factor, product management aspect is significant in the success of innovative products for PlanToys, i.e. individual/designer skills, working process, Top Management vision and right direction/question. Bathroom Design focuses on the marketing aspect, such as competitive price, affordable innovation and the nature of innovative products.

Company Perspective: Innovative Product Value

Regarding each product value, all companies have a clear view on Emotional Value (4). They define it as key principle when designing and developing innovative products. For example, Osisu mentioned that to make customers forget the negative feeling of waste is one of the key aspects in Emotional Value. Other companies can clearly identify the aspects of the emotional value in their products. Cultural Value, Social Value and Trend Value are varied in all significant levels, ranging from not/less important to highly significant. (1-4).

The value curve of the selected innovative products of four companies is assessed by the researcher, based on face-to-face interview. The details of the value analysis

and their evaluation criteria of all companies are shown in Table 3.5. Regarding the value curve of the products of the companies' perspectives, five values are in the most significant level (3.5 – 4.0), i.e. Emotional Value (4.0), Knowledge of the company's brand (3.75), Physical Value (3.5), Functional Value (3.5), and Eco Value (3.5). Two product values are averagely evaluated lower than 2.5, i.e. Cultural Value and Support Product/Service System.

The ranking of the five product values to make the success of innovative products in the companies depends on their business directions. For example, the first priority of Osisu is Eco Value. Functional Value is the top priority of PlanToys and Bathroom Design. Yothaka values its brand as the most significant. On the contrary, the ranking of the five product values to make innovative products less success is more or less similar to the successful ones, as shown in Table 3.7. To increase the rate of innovative product success, it is based on each company's experience and business direction. For instance, Osisu reflected on its experience that a decreasing number of new-mixed materials could increase the rate of success. Yothaka reflected on both internal and external factors. The internal factor is production capability and the external factor is market and buyer expansion. Bathroom Design reflected on continuous development practice, 'Kaizen', i.e. learn from failures, further develop on design success and simply it.

Consumer Perspective: Baseline Analysis

According to the evaluation of three product categories to understand the baseline value curve of the consumer perspective (based on 300 random samples) as shown in Figure 3.1, the study suggested that Thai consumers are more rational and less emotional in selecting the products in the three categories. User, Emotional, Eco and Brand Values are less distinctive in comparison with Functional, Physical and Supportive System Values. They concern much less on Cultural Value. This means the cultural value is less likely to embed in the consumers' mind. This may surmise that the unpopularity of the cultural product categories in the local market is caused by the consumers' value perception on their own culture. Regarding the baseline value curve of the three product categories, the value curve of two product categories, Furniture and Sanitary Ware are very close to the baseline value curve. This may surmise two product categories share the similar value curve in all twelve

values. On the other hand, the value curve of the toy category is slightly different from the baseline value curve, especially on three values, i.e. Functional Value, Emotional Value and Eco Value. All in all, the functional value is the most significant value in all product categories.

According to the result of each product value assessment as shown in Figure 3.2 – 3.13 on three product categories, the discussion of the results will base on the reference level, valued 2.5. This reference level is used as the means to compare the assessed value perception in all product value variables. The discussion will be based on the baseline value curve (all average value curve as shown in the blue line in the Figures) of all product value components and their components. The following value curves of all value components are higher than the reference level, i.e. Physical Value, Functional Value, Brand Value, Social Value, Trend Value, Eco Value, Knowledge of Product Competitors, Supportive Product/Service System. These five value curves are very close to the reference level: Brand Value, Social Value, Trend Value, Eco Value, and Knowledge of Product Competitors (2.5 – 3). The value curves of Functional Value and Supportive Product/Service System are assessed as highly significant (3.0 – 3.5), The value curves of Physical Value, Emotional Value and User Value are ranged from 2.0 – 4.0. The analysis of each value components in all product values is identified in Table 4.1.

Table 4.1: The results of the product value components in different significant levels

Each Product Value	Levels of Value Components			
	(> 3.5)	(3.0 – 3.5)	(2.5 – 3.0)	(2.0 – 2.5)
Physical Value	Good Quality, Durability, Appropriate to the Context	Aesthetics, Enabling	Differentiation, Uniqueness, Innovativeness	-
Functional Value	Comfort, Safety, Ease of Use, Convenience	Multiple Functions	-	-

Emotional Value	Security	Sensuality, Confidence, Taste	Adventure, Independence, Fun, Affection, Memorability	Power
Brand Value	-	-	Brand Image, Identity, Promise and Personality	-
Cultural Value	-	-	Thai Knowledge	Thainess, Thai Tradition
Social Value	-	Fair Trade	No Child Labour, Human Rights, Made-in-Thailand, Social Well-Being	-
User Value	Convenience, Efficiency	Expense and Time Saving, Self-Fulfillment,	Role-Fulfilling, Social Image/ Impression, Group Belongings	Good Fortunate
Trend Value	-	-	Trendy, In-Trend Internationally and Nationally	-
Eco Value	-	Energy Saving,	Rethinking Ideas, Biodegradable, Green Energy, CO2 Reduction	-
Knowledge of the Company's Brand	-	-	Brand Awareness	Brand Loyalty

Knowledge of Product Competitors	-	-	Direct, Substitute and Alternative Competitor	-
Supportive Product/Service System	Warranty	After Sale Service, Product Accessories and Extendables, System Platform, Product Supplements	-	-

The following are key baseline factors of product requirements in consumers' perception: Good Quality, Appropriate to the Context, Durability, Comfort, Safety, Ease of Use, Convenience, Security, Efficiency and Warranty. The following factors are the least product requirements: Power, Thainess, Thai Tradition and Brand Loyalty. This reflects Thai consumers' perception on products, i.e. they are less concern on local culture and loyalty in product/company brand.

According to this research, the samples were asked to prioritise the product values in five orders. Five key values are identified: Functional Value, Physical Value, User Value, Emotional Value and Supportive Product/Service System. This prioritized product value result is mapped with the identification of the key baseline factors as mentioned above. The prioritized key baseline factors are:

(1) Functional Value, i.e. Good Quality, Appropriate To the Context and Durability
(2) Physical Value, i.e. Comfort, Safety, Ease of Use and Convenience
(3) User Value, i.e. Convenience and Efficiency
(4) Emotional Value, i.e. Security
(5) Supportive Product/Service System, i.e. Warranty

According to the buying decision model as shown in Table 3.14, a majority of Thai consumers focus on overall related product factors when making buying decision. This means they look at the overall product value. The second majority is they compare all product details thoroughly. The third majority is they prioritise the factors from the most significant to the least one. These results reflect consumers' information process regarding the product value when they make buying selection.

Consumer Perspective: 10 Innovative Products

In this research, two groups of innovative products are selected, i.e. the successful and un/less successful innovative products. According to the twelve product values assessment on both innovative product types in comparison with the baseline customer/consumer value curve, a majority of the product values level on both innovative product types are higher than the baseline consumer level. Both innovative product groups provide product values more than Thai consumers' expectations. The value curve of the successful innovative products is a bit higher than the un/less successful one. The question is why the group of the un/less successful innovative products is failure. It may be assumed that the un/less successful products are caused by other factors which the research is not measured, such as product price, product accessibility and product stimulations.

The research result is unlikely to be expected. In theory, the value curve of product values of the un/less successful innovative products group should be lower than the baseline consumer value curve on the critical product value, or should be higher on the least critical product value on the baseline consumer perception. This theory is based on ERRC Grid principle as mentioned in Chapter 2. As shown in Figure 3.46, all product values in the group of the un/less successful innovative products are evaluated in the highly significant level (3.0 – 3.5). Regarding the group of the successful innovative products, the product values are evaluated in both the highly and most significant levels. According to the consumers' baseline value curve, Functional Value is the most significant value. The group of the successful innovative products indicates higher value level in twelve product values than another group. This suggests that the most significant product value in the consumer's baseline value curve is critical.

Physical Value and Support Product/Service System are evaluated in the highly significant level in the customer's baseline value curve. These two values are evaluated in the highly significant level in the group of the un/less successful innovative products. These values are evaluated at the same level in both the consumers' baseline and the un/less successful innovative product value curve. Regarding the group of the successful innovative products, these values are evaluated at the most significant level, which is higher than the consumers' expectation. This suggests that Physical Value and Support Product/Service System are also the most significant value.

According to the comparative analysis of both successful and un/less successful innovative products on the predefined value elements of each product value as well as the consumer's baseline value curve, the comparative results of the most significant value elements in each product value are shown in Table 4.2.

Table 4.2: Comparison of the most significant level of value elements in all product values

Each Product Value	The most significant level of value components (3.5 – 4.0)		
	Consumer Baseline	Successful Product	Un/less Successful
Physical Value	Good Quality, Durability, Appropriate to the Context	Aesthetics, Good Quality, Appropriate to the Context, Enabling, Durability, Differentiation, Uniqueness, Innovativeness	Good Quality, Durability
Functional Value	Comfort, Safety, Ease of Use, Convenience	Comfort, Safety, Ease of Use, Convenience	Safety, Ease of Use

Emotional Value	Security	Independence, Security, Sensuality	Sensuality
Brand Value	-	-	-
Cultural Value	-	-	-
Social Value	-	Human Rights, Made-in-Thailand, Social Well-being, Fair Trade	Fair Trade
User Value	Convenience, Efficiency	Efficiency, Role-Fulfilling, Self-Fulfilling	-
Trend Value	-	-	-
Eco Value	-	Energy Saving, Rethinking Ideas, Biodegradable, Green Energy, CO2 Reduction	Rethinking Ideas
Knowledge of the Brand	-	-	-
Product Competitors Knowledge	-	-	-
Supportive Product/Service System	Warranty	Warranty, Product Accessories, Product Extendables, System Platform, Product Supplements	Warranty

According to the comparative results as shown in Table 4.2, the group of the successful innovative products offers more value elements in the most significant level in comparison with the un/less successful group, based on the consumer perspective. Regarding twelve product values, the following product values contains value elements which are evaluated in the most significant level in the baseline

consumer's perception: Physical Value, Functional Value, Emotional Value, User Value and Support Product/Service System. The number of value elements in these product values is increasing. The consumers perceive more value elements related to design in the physical value in the group of the successful innovative products than the consumers' baseline analysis, i.e. Aesthetics, Differentiation, Uniqueness and Innovation. They can also recognise the additional value elements of Emotional Value, i.e. Independence and Sensuality. Regarding User Value, they can discern Role-Fulfilling and Self-Fulfilling more in the innovative products. Moreover, they recognise the importance of Product Accessories, Product Extendables, System Platfoms and Product Supplements in the value of Support Product/Service System. The value elements of two product values are raised in the success group, i.e. Social and Eco Values. Regarding the un/less success group, the number of value elements is less or lower than the number of value elements in the success group and the baseline consumer perception.

According to this part of research, the samples (in total 500) were asked to prioritise the product values in five orders in both innovative product groups. The product values of the success group in the prioritized list is similar to the baseline consumer prioritization, but not in the same order. The product value prioritisation of the successful innovative products is: 1) Physical Value, 2) Emotional Value, 3) Functional Value, 4) User Value and 5) Support Product/Service System. This prioritized product value result is mapped with the identification of the identified value elements as mentioned in Table 4.2. The prioritized key value elements are:

(1) Physical Value, i.e. Aesthetics, Good Quality, Appropriate to the Context, Enabling, Durability, Differentiation, Uniqueness, Innovativeness
(2) Emotional Value, i.e. Independence, Security, Sensuality
(3) Functional Value, i.e. Comfort, Safety, Ease of Use, Convenience
(4) User Value, i.e. Efficiency, Role-Fulfilling, Self-Fulfilling
(5) Supportive Product/Service System, i.e. Warranty, Product Accessories, Product Extendables, System Platform, Product Supplements

The consumers exactly prioritised the product values of both innovative product groups in particular order from 1 to 4, i.e. Physical Value, Emotional Value, Functional Value and User Value.

According to the buying decision model as shown in Table 3.15 and 3.16, this can summarise the patterns of the consumer's information processing whey making buying decision:

- Considering overall related factors
- Focusing on significant factors in details
- Comparing all details thoroughly
- Prioritising from top to toe

It is also interesting to analyse buying decision model which is not a common representation for Thai consumers. The following models are not the main buying decision pattern: 1) Assessing the relations of various factors and 2) Fitting with all sequential criteria. This result suggests that the consumers have less set product criteria in their minds. To sum up, Thai consumers are inclusive and analytic, not structured and systemic when making buying decision.

4.2 Research Conclusion

This research focuses on the evaluation of critical success factors of innovative products at the product Level. It studied both company and consumer perspectives in Thailand. The results suggest the value curve and the level of the twelve product values of both perspectives on the groups of ten selected successful and un/less successful innovative products. The research also suggests the product value prioritization on both perspectives and the buying decision model on the consumer/customer perspective.

Regarding the analysis of the companies' interview, the following five values are the most significant, i.e. Emotional Value, Knowledge of the Company's Brand, Physical Value, Functional Value and Eco Value. Regarding the analysis of the consumer's baseline value curve in comparison with two groups of the innovative products, Functional Value, Physical Value and Support Product/Service System are critical success factors of the innovative product value curve. This suggests that to design value curve of twelve product values for new development of innovative products, these three values must be in the level of the most significant level (3.5 – 4). It is unlikely to be un/less successful if these values do not reach the highest level. Any of product values could not be eliminated or reduced lower than the consumer's baseline value curve. According to the research result, the value curve of the un/less

successful innovative products are higher than the consumer's baseline value curve, but not higher than the value curve of the successful innovative product group in all product values. Apart from the three critical product values, the other values could be reduced in the range, not lower than the consumer's baseline value curve; or raised, higher than the successful innovative product value curve. The value curve of innovative products should have twelve product values. New product value could be added on the twelve-variables value curve to create the distinctive value. To sum up, the success of innovative products need to balance between the companies' identity and the consumer's required critical product value. In this research, companies must promise the critical three product values for their customers, i.e. Physical Value, Functional Value and Support Product/Service System. If these values do not reach consumers' expectations, it is unlikely that innovative products will be successful, in particular in Thai consumer market. Apart from these product values, companies can add other product values to build product recognition and brand royalty, such as Emotional Value, Brand Recognition and Eco Value.

As summarised on the previous paragraph, three product values are critical success factors. These values need to be maintained at the most significant level. The research identifies the value elements of each critical product value by the identification of their significant level, in particular on the consumer perspective. It identifies significant levels on both 300 consumers' baseline analysis and 500 consumers' perspectives on both innovative product groups. The result suggests that the most significant level of value components evaluated by the consumers. As the analysis shown in Table 4.2, it suggests that the group of the successful innovative products tends to provide much more value elements/components than the baseline consumer's expectations. The group of the un/less successful innovative products tends to offer by far much less value components than the baseline consumer's expectations. Focusing on the critical product values, i.e. Functional Value, Physical Value and Support Product/Service System, the value components of the group of the innovative product success have equal to or much more than the baseline consumers' expectation. To sum up, companies need to evaluate all value components, in particular on the critical product values when evaluating innovative products along new product development process. These value elements are critical as the research result clearly shows.

According to value prioritisation on both companies' and consumers' perspectives, five prioritized product values are varied as shown in Table 4.3

Table 4.3: Value prioritisation on four views, from 1 to 5

Priority	Company View		Consumer View		
	Success	Failure	Baseline	Success	Failure
1	Functional	Functional	Functional	Physical	Physical
2	Brand	User	Physical	Functional	Functional
3	Eco	Physical	User	Emotional	Emotional
4	Physical, User	Competitive product	Emotional	User	User
5	Emotional	Emotion, Brand	Support System	Support System	Social

Remark: 1 = The first priority – 5 = The fifth priority

The prioritization of five product values on both perspectives is not in the same sequence. The following product values are present in both perspectives, not in particular order, i.e. Functional Value, Physical Value, User Value and Emotional Value. The following prioritization of both perspectives in a particular order, from 1 – 5, is

(1) Functional Value
(2) Physical Value
(3) User Value
(4) Emotional Value
(5) Brand Value, Eco Value, Competitive Product, Support System or Social Value

This prioritization suggests that product-focused approach is the first priority. The second priority is user-focused approach. The third priority is the context-focused approach.

According to the research of the buying decision model on the consumer's perspective, the result suggests that Thai consumers tend to be inclusive and analytic. When they make buying selection, a majority of them consider overall related factors and focus on significant factors in details. They tend not to be

structured and systemic. They do not have sequential criteria in their mind and assess the relations of various product factors.

4.3 Recommendation

For future research, it would be very interesting to bring this twelve product value framework and reseach methodology to evaluate the baseline customer's product value in different countries. This will help understand value curve of consumers' expectation in product values around the world. The applications of this understanding will help transnational and local companies to create innovative products that will locally fit with a diversity of consumers' values around the world. They will also help create innovative product value evaluation framework for new projects in order to measure the possibilities of their success. This framework might be used as innovative product prediction model. Moreover, if innovative products tend to be introduced new value curve or emphasized on new significant product value, different from consumers' baseline perception, they must be carefully planned change and communication implementation programmes in parallel with the development of new one. According to this research, there are possibilities to manipulate some evaluated product values, especially at the significant level.