

NEW PRODUCT DEVELOPMENT (NPD) PROCESS IN SUBSIDIARY: INFORMATION PERSPECTIVES

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Abstract

Information is an important resource for new product development (NPD) process in subsidiary. However, we still lack of research to analyze NPD process from information perspective in subsidiary context. This research is an exploratory research and it exploited 8 cases of NPD process in consumer goods subsidiaries operating in Indonesian market. Three types of information have been identified and analyzed NPD process; global, regional and local information. The result of this research reveals that new product will be resulted is determined by the type of information used. This research reveals four new product typology using information types. The semi-structured interview and archive studies generate global, regional, integrated and local NPD process. Each process has its own characteristics such as type of information used and interaction pattern among subsidiary-regional office-headquarter.

Keywords: subsidiary, new product development, information

1. Introduction

Successful multinational operation is the result of any factors, including organization's ability to innovate in order to create and re-create new product (Ito & Rose, 1999). Increasing complexity and turbulence in the environment increase enlarge the need for high process quality of new product development (NPD) to generate competitive advantage in multiple countries. The need to adapt new products, systems and procedures to fit local markets has also led to an increase in the need or innovative activity across subsidiaries of multinational companies (MNC) (Ghosal, 1987). Operating in different country environment makes MNC should always capable to generate and re-generate new product in order to maintain competitiveness vis-à-vis global and local competitor.

New product is believed as a source of international competitive advantage (Tidd *et al.*, 1997; Friar, 1995). New products help to capture and retain market shares, and increase profitability in those markets. In the case of more mature and established products, competitive sales growth comes not simply from being able to offer low price but also from a variety of non-price factors (e.g., design, customization and quality). However, the heart of NPD process is decision making process in each phase of development (Wind, 1982; Urban & Hauser, 1980; Cooper, 1993). For example, Schilling and Hill (1998) described that NPD consists of several decisions, from opportunity identification, concept development,

product and process design, and commercialization. Furthermore, decisions in NPD cannot be separated with commercialization decisions (Hultink *et al.*, 1998; Di Benedetto, 1999; Hultink & Robben, 1999; Hultink *et al.*, 2000; Guiltinan, 1999). Generally, this line of research classified NPD decisions as strategic decisions whereas commercialization as tactical decisions.

Literature on decision-making emphasizes the importance of information (Fredrickson, 1984; Fredrickson & Mitchell, 1984). They argued that decision quality is determined by the comprehensiveness of information considered. Information is believed as an important resource and may exist in a variety of a form and it may transmit from one system to another, and it may undergo a series of transmission. Following this idea, Nylen (1975) described that market information is important, while essential, during NPD process. New product must fit with external factors (e.g., consumers need and want, government regulation) and internal factors (e.g., organization objectives, resources and capabilities, physical facilities). These factors can only be interpreted and translated into product characteristics when actors in organization have sufficient information of them. Therefore, how the information received best describes the actual condition will determine the quality of product characteristics. When organization actors accumulate and gather accurate information, they can increase the accuracy of product characteristics to answer consumer needs and wants.

Analyzing NPD process from information perspective in the subsidiary context, nowadays, becomes important for several reasons. First, many scholars showed that subsidiary as an important unit in the MNC network structure (Paterson & Brock, 2002). Subsidiary interacts daily with domestic (local) environment. Since, MNC's global competitive advantage is a function of the accumulation of winning the competition in domestic market (Bartlett & Ghosal, 1986; Doz & Prahalad, 1991). Consequently, subsidiaries play an important role to create and to maintain MNC's global competitive advantage (Rugman & Verbeke, 2001; Birkinshaw *et al.*, 1998). Subsidiaries are not only an entity body in the MNC network that absorbs the firm-specific advantage originate in the parent company (Rugman & Verbeke, 1993). But they can build competitive advantage by dealing with local business competition. In other words, the competitiveness of MNC is not so much characterized by the efficient exploitation of its firm-specific advantage as suggested by the more traditional view of the MNC (Hymer, 1976; Kindleberger, 1969; Dunning, 1981; Hennart, 1982), but rather by the effective capitalization of the different advantages created in various subsidiaries. The more and more, study of MNC will focus in the subsidiary operation (Paterson & Brock, 2002) and contribution to build MNC competitive advantage.

Second, previous researches in the past have tried to analyze NPD in MNC context. However, their researches were still limited to activities of NPD in R&D departments (e.g. Alphonso & Ralph, 1991; McDonough *et al.*, 2001; Cheng & Bolon, 1993). In fact, subsidiary's operations are under control and coordination from regional office and headquarter (Cray, 1984). Consequently, analyzing NPD in subsidiary must consider its structural relationship in MNC network. Thus, this research tries to analyze subsidiary's NPD by considering information embedded in relational mechanism with regional office and headquarter.

Third, NPD process in MNC can be realized by combining location-bound knowledge and non location-bound knowledge (Rugman & Verbeke, 2001). In MNC context, innovation needs to combine local market information where subsidiary operated and global information diffused by headquarter. Subsidiary innovation must respond the opportunity and threat from local market, and in the same time, must respect the guidance and the orientations given by headquarter officers. Several authors like Gupta and Gonvidarajan (1991) developed a typology of subsidiary strategy using knowledge flow pattern within MNC network. They used 'intra-corporate knowledge flow' terminology in describing the pattern of transfer of either expertise (skills and capabilities) or external market data of strategic value. The type of expertise

transferred could refer to input process (e.g., purchasing skills), throughout process (e.g., product designs, process designs, and packaging designs), or output process (e.g., marketing know-how, distribution expertise and negotiation capabilities). Similarly, the transfer of external market data could refer to the transfer globally relevant information about key customer, competitors or suppliers. Their typology divides subsidiary into four types; global innovator, integrated player, implementer, and local innovator.

The main aim of this research is to analyze NPD process in subsidiary by assessing the information used. Since, subsidiary operation is under coordination, if not control, of regional office or headquarter, thus the relation between them becomes critical. Considering that there are not many of researches analyzing NPD within subsidiary operation, it becomes important to conceptualize its process. Exploratory research is selected based on novelty of the topic (Eisendhardt, 1989; Yin, 1984). In this research, I suppose that headquarter, regional office and subsidiary can contribute by providing relevant information during NPD process. However, I argue that the portion of information used during NPD differ from one product to another product. There is a product, for example global product, which global market information is more important rather than local market information. Another scenario could be happened for local product in which new product content information more on local environment characteristics rather on headquarter global strategy. The conceptualization of this process is important to open our comprehension about NPD process in the subsidiary context.

Information In NPD. Information plays an important role during NPD process. During the initial phase of NPD process, market information commonly portrayed as most relevant to trigger new product ideas (Day, 1992; Nonaka, 1991). They argue that market information is critical for recognizing new opportunities and initiating creative output. The role of market information is not only limited during idea generating phase, but also on the further stages such as idea evaluation, product development, product testing and product commercialization (Crawford, 1987; Urban & Hausser, 1980). Since NPD process is a collective activities (Griffin & Hausser, 1996; Zirger & Maidigue, 1990; Cooper & Kleinschmidt, 1995), therefore market information must be shared throughout organization units from marketing, R&D, manufacturing until finance department (Ottum & Moore, 1997). This process also needs common understanding of different units in the MNC organization. Therefore the main task of top-management-team in MNC organizational structure is to assure that market information is well distributed to all organization units.

Since MNC operation is widely dispersed around the world, thus creating common perception of the needs to create new product is not an easy task. Furthermore, headquarter-subsidiary relationship itself is never simple ones. Essentially, the relationship can be modeled as a 'mixed motive dyad' in which the interest and perceptions of the two parties are frequently not aligned with one another (Birkinshaw *et al.*, 2000). Where subsidiary desires autonomy and adaptation to local market, headquarter prefers control and standardization around the globe; where subsidiary managers see entrepreneurial endeavor, headquarter sees opportunism; and where subsidiary is acting primarily in the interest of the local business, headquarter is far more concerned about the MNC's worldwide profitability.

However, the information needed to NPD is not limited only on market information. Following, Tumoninen *et al.*, (1997) that firm must have certain level of capabilities in order to exploit market opportunities; I argue that information concerning capabilities and resources in the MNC context are important during NPD process. Information concerning resources, facilities, strategies, technological capabilities and market strategies must be combined with market information to decide which kind of product must be created. New product strategies should consistent with the capability of the company to create, produce and commercialize it. Information that describes market opportunities, merely, cannot be used as an indicator of what kind of product must be built. MNC should analyze the capabilities and resources available to realize the production of this new product. Combining external and internal information can enhance the effectiveness of subsidiary's NPD process.

In this research, the unit analysis is in subsidiary operation. In reality, subsidiary operation is under

influence, if not control, of headquarter. Bringing this fact into NPD process therefore there would be two structures of capabilities and resources must be considered; headquarter and MNC global network capabilities and resources, and subsidiaries capabilities and resources. Decision to create new product in MNC will consider information about resources and capabilities from headquarter and subsidiaries aspects. I can summarize that NPD process needs both market (global and local) and internal organization (headquarter and subsidiary) information.

Following Burgeois (1980) partition of external environment, headquarter, regional office and subsidiaries have general and industrial (task) environment. However, headquarter deals with global environment and subsidiaries interact with local environment. While regional office, it consider mainly on information in the regional-area level. During NPD process, the three units must consider the information concerning global politics, security, economic development and growth, ecology issue, and socio-cultural movement. Even these aspects do not have direct impact on NPD process, but their indirect effect can endanger NPD process. Headquarter and regional office must consider all appropriate information concerning global and regional industrial environment such as global-regional competitors, suppliers, distributors, and consumers. For example, company like P&G must evaluate permanently new product strategies exploited by Unilever. The same mechanism is happened between Coca Cola and Pepsi Cola. For these companies, the competition field is everywhere around the globe. New product developed and launched by one company threatens competitors' market share and vice-versa.

Different with headquarter and regional office, subsidiaries' managers deal with general and industrial

Table 1. MNC Information Structure

	Internal Organization Information	Market Information
Headquarter	MNC Global Strategy MNC Global Resources/Competencies	Global General Environment Global Industrial Environment
Regional Office	MNC Global Structure Regional Office Strategy Regional Office Resources/Competencies	Regional General Environment Regional Industrial Environment
Subsidiary	Regional Office Structure Subsidiary Strategy Subsidiary Resources/Competencies Subsidiary Structure	Local General Environment Local Industrial Environment

environment in the local context during NPD process. Subsidiaries must collect and accumulate information concerning national politic, economic, socio-cultural, and demography. Since these factors are essential to determine the attractiveness, feasibility and sustainability of new product project, thus new product analysis must encompass these factors. For example, MacDonal in Japan use more fish ingredient to make burger because Japanese people prefer fish rather than beef. The new product design must consider economic situation in local country. Since inflation and unemployment rate will determine the purchasing-power-parity of consumers of new product thus analyzing of domestic macro-economic situation is important during NPD process. The pressure to analyze industrial environment is greater since it influence directly on subsidiaries' operation. Local competitors, suppliers, distributors and consumer behaviors need to be evaluated during NPD process. When subsidiary managers' have little host-country environments knowledge it makes decision and action to be taken is too risky and could endanger new product performance in the local market. Analyzing the competitiveness of host-country environments should be quite detailed and encompass all aspects which could provide to subsidiary with better clues on potential threats and opportunities. These would include information similar to that which is often sought by the firm itself in making product decisions. Therefore, subsidiaries managers should gather host-country competitor information about product market portfolio, product positioning and market segments, marketing strategies and activities, financial resources, technological capabilities and management style. Competitive orientation analysis could give the orientation of subsidiary about host-country competitor behaviors especially to launch new product in local market.

External information should be combined with internal information. Headquarter as an integrator unit tends to emphasize global strategy and structure around the world. Whether R&D facilities are centralized or decentralized will influence the NPD process. MNC that centralized R&D facilities tends to use global strategy (Cheng & Bolon, 1993). MNC exercise global strategy to obtain the efficiency of production through higher scale economies or by finding more efficient production process (Ghosal, 1987). Consequently, subsidiaries managers must coordinate with centralized R&D in formulating new product. In NPD process, headquarter will treat the local market where subsidiary operate as a part of global market. Here, headquarter will produce the product and brand with high standardization around the world (Sandler & Shani, 1991). However, many researches recently have shown that subsidiaries can accumulate and build their competencies and resources (Rugman & Verbeke, 2001; Birkinshaw *et al.*, 1998; Rugman & Verbeke, 1993) and take more autonomy

during NPD process. NPD process, thus, consider also the information concerning the structure of resources-facilities and capabilities between headquarter and subsidiary. Information about this situation will determine the mechanism of NPD process between headquarter and subsidiaries' managers.

2. Research Method

I conduct an exploratory research of consumer goods MNC which operate in Indonesia. I used semi-structured interview method to gather information from senior managers in the subsidiary operation starting from August until October 2003. The main objective is how the NPD process is happened. I identified 30 consumer goods MNCs that produce non-durable goods for the product such as cosmetic, household, personal-care, biscuits, food and beverages, and toiletries in Indonesia. Company lists are built from the Indonesia Database Industry Report (IDIR). Database helps me to constitute 30 subsidiaries consumer goods to be studied. The consideration of choosing 30 subsidiaries consumer goods are: (1) those who have manufacturing facility in Indonesia, and (2) those that fairly well-known for Indonesian market, and (3) those who have an important market share in Indonesian market. Finally, I had 8 subsidiaries who participate in this research. Subsidiaries who do not accept to participate in this research mainly subject to information confidentiality.

The interviews last 2 - 3 hours each and are recorded in the cassette. The participants of senior managers had been interview vary from Brand Manager, Sales & Marketing Manager until General Manager. The place of interview also diverse following the convenience of subsidiaries managers, some interview had been conducted in the office, one interview in restaurant and one interview in manager's house. The objective of these interviews is to obtain information as much possible about NPD process in their company and the relations between headquarter-regional office-subsiary during the process. The senior managers were asked about structure and strategy of NPD both in the MNC network and in the subsidiary. By gathering this information, I hope can understand how the mechanism of NPD is happened from the information flow perspective. Further, I combine the result of semi-structure interview with other information resources, such as subsidiaries archives, and press and media release to analyze case by case.

2. Result and Discussion

Four Processes of NPD. Exploratory and archive study allows us to conceptualise the NPD process in subsidiary. As described earlier that NPD in the MNC needs some degree of coordination between

subsidiaries, regional office and headquarter. NPD needs to combine both of the resource and competency of subsidiary, regional office and headquarter. Subsidiaries' resources and competency, in general, is derived from dealing daily with host-country environment thus providing local market information. In contrast, experiencing to handle diverse operation worldwide, headquarter contribute mainly to provide global information during NPD process. Analyzing literature study and exploratory research, I found four

configuration of NPD process in MNC. This configuration is built based on the proportion of information (global-local) used to develop new product in local market.

Global Product Process. There is a tendency that NPD mechanism in the subsidiary follows strategy decided in headquarter. Subsidiaries which operate in the Global MNC, they are implementer of global strategy. Consequently, NPD decision- making processes use

Table 2. MNC Subsidiaries List Participation

No	Company Name	Group/Country	Industry	Regional Office	Headquarter	Interview with
1	PT. Yasulor Indonesia	L'Oréal/France	Cosmetics	-	Paris	General Manager
2	PT. Avon Indonesia	Avon/USA	Cosmetics fragrance	Philippine	New York	Product Marketing Manager
3	PT. Sara Lee Indonesia	Sara Lee/USA	Personal care Household	Based on Brand	Netherlands	Senior Brand Manager
4	PT. Nestlé Indonesia	Nestlé/Swiss	Food Beverages	Based on Brand	Swiss	Marketing Manager
5	PT. Reckitt Benkiser Indonesia	Reckitt Benckiser/UK	Personal care Household	Singapore	England	Brand Manager
6	PT. Kraft Indonesia	Kraft Food (food division of Philip Morris)/USA	Food Beverages	Melbourne Australia	New York	Brand Manager
7	PT. Nutricia Indonesia	Nutricia/Netherlands	Baby Food	Jakarta Indonesia	Netherlands	Business Unit Manager
8	PT. Unza Indonesia	Unza/Malaysia	Cosmetics Personal care	-	Singapore	Sales & Marketing Manager

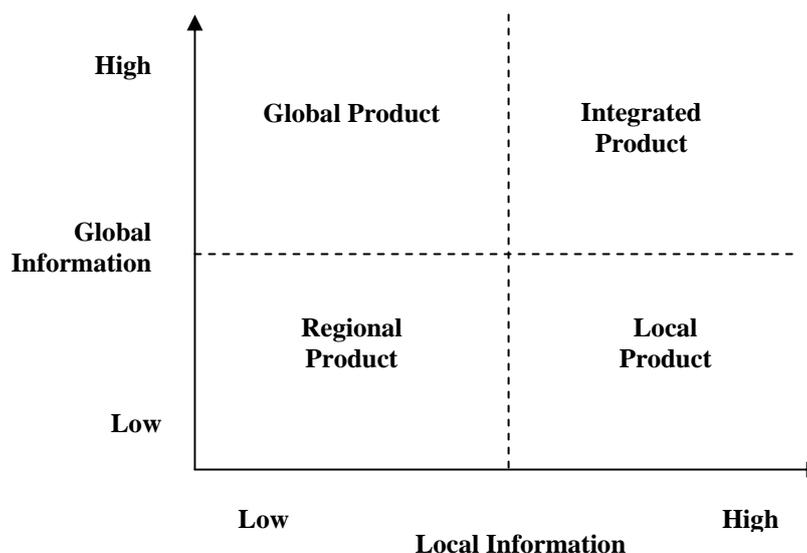


Figure 1. Typology of New Product Process

more information from headquarter rather than local information. It is headquarter who takes initiative to create new product, formulate new characteristics and deliver new product into local market. In global product, local information supports global information. As a result, NPD will reflect more on headquarter perspectives on global information (both external information and MNC internal information) rather than local information. Information flow from headquarter to subsidiaries. The usage of local information is needed during introducing new product into local market. In this stage, subsidiaries need local information such as the information of local consumers, distributors and competitors to bring new product into local market.

The interview interpretation reveals that almost all the product is global product and the main task of subsidiaries in this type is to design action plan to introduce global product to local market. We can find in the cases of PT. Yasulor Indonesia, PT. Avon Indonesia, PT. Reckitt Benckiser Indonesia and PT. Unza Indonesia. In these subsidiaries, information used to create new product mostly coming from headquarter. The information consists of brand guidelines, advertising theme and product characteristics flows from headquarter to subsidiaries. Subsidiaries' managers in these subsidiaries absorb and implement the guidance and orientation that are decided in headquarter. The main function of subsidiaries' managers is the implement body of global strategy. Additionally, local information contributes slightly during NPD process.

More precisely, the relation between headquarters and subsidiary to introduce global product, is happened in three ways: (1) headquarter instruction, (2) reciprocal relations, and (3) subsidiary initiative. The first mechanism is happened when regional office and headquarter ask subsidiary managers to introduce new product in local market. The initiative to launch new product comes from headquarter based on market intelligence done by headquarter office. It is happened in PT. Reckitt Benckiser Indonesia. Normally before launching new product category, manager of Reckitt Benckiser in Singapore demand PT. Reckitt Benckiser Indonesia managers to prepare marketing launching program. The PT. Reckitt Benckiser Indonesia managers in the passive situation and do what regional office's instruction. Mostly cases are happened in the second mechanism, in which there is reciprocal interaction between headquarter and subsidiaries in launching new product. Generally, headquarter gives the list of several new product and subsidiaries will pick what kind of new product will be launched in their home country. The decision which new product will be selected is made by subsidiaries managers. The role of headquarters is only to supply and provide list of new products. This mechanism is happened in PT. Yasulor

Indonesia and PT. Kraft Indonesia and PT. Unza Indonesia. Regular meeting held by headquarter is the main media to inform new products list. Subsidiaries will select new product based on local environment characteristics. Introducing global product could also be happened when subsidiaries take initiative and ask certain products to be launched in their local market. Subsidiaries could ask product's sister subsidiaries in other countries to be launched in local market. PT. Nestlé Indonesia can ask other subsidiary's product directly in other country to be introduced in Indonesian market.

Integrated Product Process. Integrated products are happened when subsidiary and headquarter equally, more or less, share the same amount of information during NPD process. Based on the 8 cases studied, this type of NPD is realized when headquarter and subsidiaries' managers work together to create new product. PT. Yasulor Indonesia, PT. Kraft Indonesia and PT. Sara Lee Indonesia can propose a NPD project to headquarter office. When headquarter agree the proposition of subsidiaries, they will work together to discuss the feasibility of project in terms of financial aspect, market aspect and production aspect. In general, subsidiaries provide some key information about new product characteristic will be developed and target market specification in local market. These information will be used by centralized R&D, under headquarter authority, to develop and to design new product. The interaction process is usually happened between marketing division in subsidiary and R&D division in headquarter. Marketing division in subsidiary provides market information whereas R&D division supplies technical information.

The integrated process facilitates subsidiary managers and headquarters to work together during the new product development. Based on 8 cases, the initiative of NPD seems to come from the subsidiary managers, because they interact daily with local environment. Consequently, they can see well the need and the want of local market as well as the local competitor information. The information about market opportunity and problem will be treated and analyzed to make conclusion. When there is an increase of demand in a certain product, they will communicate with headquarter. Then, headquarter and subsidiary will form such task force to evaluate the possibility in developing new product. The emphasizing of this mechanism is the processes that headquarter and subsidiary meet together in formulating to develop a new product. It does not matter that the process happened in headquarter or in subsidiary R&D division. Subsidiary behaves more as a partner of headquarter in developing new product.

In this process, the subsidiary plays an important role not only in strategy implementation of new product, but

also actively getting involved in developing new products. I assume that the involvement of subsidiary managers in developing new product will increase their product characteristics knowledge. Once the new product is finished, the next task of the subsidiary is how to formulate strategy to introduce new product to local market. In this mechanism, subsidiaries cannot develop the new product, because they do not have R&D physical infrastructure. The respondent confirmed that R&D division is centralized in headquarter. The grouping and centralizing of R&D is a significant way to obtain the competitive advantage of international operation (Kobrin, 1991). Because constructing the R&D infrastructure is very expensive in terms of capital and human resources, thus centralizing of R&D purposed to obtain the operation efficiency of MNC operation. Headquarter in developing new product will combine the information from subsidiary and from local market. Because the information from the subsidiary managers is the result of interpretation, and interpretation is also influenced by cognitive base and value of subsidiary managers (Hambrick & Mason, 1984), headquarter will re-investigate globally the interpretation. However, the headquarter involvement in local market is not only to cross-check the recommendation of new product development from subsidiary, but also to acquire the information supplement of the product that will be developed. Another integrated product mechanism is happened when subsidiary make certain adaptation of global product to local preference. And the result of this adaptation process results different product and formula from original product.

Local Product Process. Local product is happened when subsidiaries has authority to conduct market research, developing new product and formula, and launching to local market. Information used to create new product is dominantly by local information. Product characteristics are derived from local needs and preferences. Instead of that, another information sources such as product regulation, product design, product quality and product innovativeness are drawn from local government, competitors, suppliers and distributors. Considering that several subsidiaries have a high degree of autonomy, decisions in each stage of NPD are decided locally. Subsidiaries receive a low degree of information, orientation and guidance, from headquarter. Consequently, new product created will reflect more on local interest rather than global preference.

Based on interviews and archives study, this mechanism could be happened in two ways: (1) purely autonomy, it means during NPD process, subsidiaries do not need to ask an authorization from headquarter, and (2) semi autonomy, it means subsidiary must propose 'project-brief' and headquarter will evaluate it. PT. Sara Lee

Indonesia and PT. Kraft Indonesia has purely autonomy to develop their own local product. However, PT. Nutricia Indonesia must make 'project-brief' which is composed the result of market research about potential market, potential competitor of this new product, profit estimation and potential contribution to PT. Nutricia Indonesia performance.

The respondent confirmed that, usually, it is subsidiary managers who take initiative to develop and to formulate new product. Subsidiary managers collect, scan and interpret local information. The information is processed, analyzed and taken into action within the subsidiary to decide whether new product project will be realized or not. In full-autonomy subsidiary, all NPD process is happened locally. In semi-autonomy, information from headquarter contributes, in small portion, during NPD process.

When such a decision to develop new product is decided, the R&D division within the subsidiary will start to formulate the product design. In developing the new product, R&D division in the subsidiary still needs coordination with headquarter. The product characteristics such as, whether the product will be labeling global brands or endorse local country brand with the corporate brand and logo (Douglas *et al.*, 2001), need a certain level of coordination and information interchange with headquarter. And the intervention of headquarter in the autonomy process is limited in a certain activity, such as standardization of global brands and corporate logo in new product. It seems that such subsidiary has a completed function from strategic issue formulation, development solution and implementation.

Regional Product Process. In regional NPD process, both local and global information contribute moderately to create and to formulate new product. In contrast, NPD process uses heavily regional information. Consumers, for example, are not limited locally and also are not served globally. New product considers more on regional needs and preferences. It necessitates cooperation and coordination between and among subsidiaries in a region. In this case, subsidiaries will develop and introduce pan-regional product. Pan-regional products are the products that are sold in two or more countries (Craig & Douglas, 2000). It seems that pan-regional product is under control and coordinate head of regional office. Regional office coordinates and manages the operation of MNC network under the same regional area. The grouping subsidiaries under the same region and manage it based on homogenization of local characteristics will enhance coordination mechanisms. Countries in the same region tend to have close characteristics such as consumer taste, gross domestic product (GDP), socio-culture, demographic, politic and government policy (Proff, 2002). Therefore, it will

become easier for regional office to standardize the product characteristics in the regional area in favour of homogenization of local environment.

Regional new product process is happened when headquarter necessitate to several subsidiaries in different countries to build new product proposition together. This process makes new product proposal is not in the local level but more on regional level. Considering economic of scale and coordination complexity, it makes several companies like Avon to create new product regionally. During interview with PT. Avon Indonesia stated that headquarter office obliges that new product proposal must be submitted at least two countries. It forces PT. Avon Indonesia search sister subsidiary in Malaysia, Philippine, Thailand or India to join into new product development. This strategy gives a lot of difficulty since PT. Avon Indonesia must persuade and convince that the new product proposed will be beneficial for other market. The situation will be much better when sister subsidiary in other country perceives that this new product can also be launched into their local market.

However, introducing new pan-regional product into local market could be happened into two ways: (1) those which can directly launch without modification, and (2) those that need little adjustment. The decision to adapt and to adjust product characteristics depends on the extent product characteristics suit to local environments factors in each country. When pan-regional products are appropriate completely with the local needs, thus subsidiaries could introduce it without any modification. If pan-regional products do not suit with local need completely, thus subsidiaries need to make adjustment and modification of global product characteristics following local tastes and needs. Another factor is to what extent the extent of product sensitivity with local socio-culture. There are certain product characteristics that are very sensitive with socio-culture aspect of host country. Therefore, subsidiaries need to make adaptation to these kinds of product. Hong *et al.*, (2002), for example, describe that entering brand name into local market should consider the diversity of language, nationalism, and cultural factors. The decision to adapt brand names to the language of local market needs to asses this diversity. Tse *et al.*, (1988) also concluded that local culture factor is significantly influence international marketing decision.

4. Conclusion

Information is a fundamental resource to create new product. The complexity of NPD process requires organization actors should consider information comprehensively (Fredrickson, 1984; Fredrickson & Mitchell, 1984). This task becomes more difficult in the subsidiary context. Understanding subsidiary's NPD

process necessitate analyzing the interaction among subsidiary-regional office-headquarter. Information flow is embedded in the interaction among these three units in MNC structure. The 8 cases of consumer goods show us that the portion of information given by each unit will determine of what kind of new product will be developed.

The role of each unit in providing information is considered as a main factor to define the type of product. When headquarter play actively and provide most information needed to formulate and to create new product, thus it results global product. The main consideration in this product is global environment consideration in which standardization around the globe is taken place. In contrast, when local information is dominant rather than global and regional information, as a source to create new product, thus local product will be built. Product characteristics reflect mostly local needs, wants, standards and preferences. Integrated process is taken in place when both headquarter and subsidiary work together to build and to form new product. Generally, subsidiaries provide local market characteristics and headquarter supply technical information to formulate new product (R&D facilities). However, regional product stress on the importance of regional office to coordinate subsidiaries' activities in a certain region. The product characteristics will reflect more on regional needs and preferences rather than local and global.

Successful and unsuccessful NPD are influenced by several factors. For global and integrated product the vertical and horizontal coordination are importance. Vertical coordination is interaction between subsidiaries, regional office and headquarter. Both for global and integrated product, subsidiaries need support and cooperation from headquarter. In regional product, coordination and information sharing among subsidiaries are important. For local product, the only coordination mechanism to contribute new product launching programs is horizontal or cross-functional within subsidiary. Marketing division needs support from other division like R&D, finance, HRD, logistic, inventory and manufacturing during the implementation of new product launching programs.

This research is an exploratory research. The complexity of the coverage creates several limitations in this research. First, this research does not consider MNC global strategy and structure. Previous researches argued that these aspects as the main determinants of the role between subsidiary, regional office and headquarter (e.g., Jarillo & Martinez, 1990; Prahalad & Doz, 1987; White & Poynter, 1984). Second, technology utilization in information sharing does not involve in my research analysis. Therefore, the future research is widely open to continue our comprehension

about subsidiary' NPD. Several possibilities need to be analyzed for the future researches are: (1) the effect of technology choice to share information on decision quality during NPD process, (2) the effect of MNC strategy and structure on information sharing during NPD process, and (3) the MNC structure underlying effectiveness of information sharing in MNC network.

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