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COMPETITIVE ADVANTAGE THROUGH PACKAGING DESIGN – PROPOSITIONS FOR SUPPLY CHAIN EFFECTIVENESS AND EFFICIENCY

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ABSTRACT
Packaging is becoming increasingly important from a marketing as well as logistics perspective, particularly for actors in consumer product supply chains. However, the role of packaging in creating or contributing to the competitive advantage of a company or a whole supply chain is still unexplored to a large extent. This is even the case in businesses where research has shown the benefits of conscious packaging design and development, and integrated packaging and product development. Similarly, packaging design as a driver for innovation has been studied to a limited extent. This paper elaborates on why the potential of integrated package and product development is realized to such a limited extent and why the potential of packaging innovation in itself is so unexplored for supply chain effectiveness and efficiency. The findings are based on three case studies, an extensive literature review and previous empirical research, resulting in four propositions for future research and development that are of high relevance for product and packaging developers, designers and supply chain managers.

Keywords: Packaging design, product innovation engineering, logistics, supply chain management

1 INTRODUCTION
At a recent meeting in a global consumer product company on the future development of two of the core consumer product lines, the discussion came to focus on the fact that the packaging had been neglected for many years. The thought of the packaging as a potential for innovation was raised. For years, development focused on the features of the products, while at the same time knowing that the packaging played a central part in the marketing and sales as well as the distribution of the product. The focus of the meeting changed to address the potential role of packaging in the future development of new and existing products. However, the discussion ended quite abruptly. The participants of the meeting found no answers to the questions they started to ask themselves: What consumer insights could guide us here? What issues are important to retailers? How much do we actually spend on our packaging – from material to design and logistics? What is the role of our supplier in the development process?
This brief illustration demonstrates the unexplored potential of packaging and packaging design in innovating for supply chain effectiveness and efficiency. The potential of packaging is particularly interesting from a supply chain perspective due to the basic role and function of packaging in this context. It plays a central role in the marketing and sales of a product and has an equally important role in the handling and transportation of the same. Hence, packaging is an integral part of the product passing through the supply chain and includes the physical package as well as the process of packing and unpacking.
Adopting the perspective of the supply, or value chain, when identifying and developing opportunities for new products and business solutions, is growing in importance [1; 2; 3]. Many academics argue that the competitive advantage has shifted from company versus company, to supply chain (or networks) versus supply chain [4; 5; 6]. In fact, Ferrari and Parker [7] claim that the supply chain today constitutes the business model in many manufacturing industries as they become more global and increasingly dependent on external partners, particularly when the key strategic differentiator lies in innovation and not only in cost cutting or efficiency. This is particularly true for manufacturers and

retailers in fast moving consumer goods [8] where packaging is becoming increasingly important from a marketing as well as logistics perspective [9; 10].
The importance of effectiveness and efficiency aspects of packaging is also noted in manufacturing companies at large where the consequences of not considering the product in a supply chain setting when designing the packaging are reported by Bjöörn [11]. In the mid 90s the Volvo Car Company took the decision to outsource the responsibility of developing their packaging for two coming car models to its suppliers. Problems arouse rather quickly. The delivered packaging, designed by the suppliers, was not rigid enough to allow for the sequence components to be handled in the appropriate way which caused production delays and increased costs. In order to maintain production, the suppliers and Volvo had to make late modifications and live with the solutions available until a new model was designed and built. Another costly consequence was the return flow of trays as these were not designed for apportionment when emptied (i.e. in return flows the same volume of space was required in storage and transportation).
On a more positive note, packaging development and design can in fact be a driver of product innovation, marketing innovation and process innovation as reported by Klevås et al. [12]. In a recent development effort at IKEA, referred to as the Glimma Case, the redesign of the packaging affected the product design of the Glimma tea lights as well as the production process, materials handling, logistics, packaging machinery and supplier relations. In total the redesign led to more packages per pallet resulting in a 30 percent reduction of pallets. For the suppliers the tea lights took up less space which the distribution centers also benefitted from. It further increased the convenience for store personnel as the new packages where easier to display and handle, something consumers also appreciated.
The Volvo and IKEA cases are good examples of the interdisciplinary nature of packaging and its relation to product design and logistics activities, and hence innovation for supply chain effectiveness and efficiency. The fortunate outcome in the IKEA case, however, still appears to be an exception. Research shows that packaging design and development traditionally only start when a new product is ready for production and subsequent distribution [13]. There is little evidence of packaging being a driver of innovation and studies on integrated packaging and product design [14; 15] focus solely on the cost reducing aspects of packaging design, not on the value added. Previous studies suggest that there is more to be gained from an earlier integration of packaging in the development of new products, as well as viewing packaging as a driver for innovation in itself – unexplored dimensions of packaging design and innovation [10; 16; 17; 18; 19]. For designers of packaging *and* products (as well as business developers in general) this is of high relevance.
The research questions are twofold: *Why is the potential of integrated packaging and product development realized to such a limited extent? Why is the potential of packaging innovation in itself so unexplored for supply chain effectiveness and efficiency?* By "potential of packaging" we mean the unexplored facilitator packaging is, both in terms of effectiveness (i.e. enhancing customer experience, improving sales, communication and branding to customers and consumers, etc.), and in terms of efficiency (i.e. ease of handling, logistics, traceability, protection, etc). The findings presented in this paper provide initial answers to these questions and propositions for further research and development.
The paper describes our research approach, followed by a theoretical framework based on previous empirical findings and theory related to packaging and product development, innovation management and supply chain perspective/management. Previous ICED contributions on the topic of packaging have also provided important input, in particular the research of Bramklev [14; 20]. The empirical findings bring together initial results from three ongoing case studies followed by a discussion in which four propositions are generated. The last section presents conclusions and suggestions for future research.

2 RESEARCH APPROACH

The research approach is mainly explorative based on the gaps identified in industry and academia of the unexplored business opportunities (i.e. innovation potentials inherent in packaging). The drivers for the study were questions raised from industry such as the ones mentioned in the introduction, together with findings in the literature where only cost reducing and efficiency related aspects were raised when it comes to packaging.
Eisenhardt and Graebner [21] state that "*Sound empirical research begins with strong grounding in related literature, identifies a research gap, and proposes research questions that address the gap*" (p.

26). The aim is to bring together research on the role of packaging from an effectiveness and efficiency perspective and suggest propositions on the unrealized potential of packaging innovation.
The findings presented are based on a literature review and empirical studies. Hence, the research approach is also abductive to allow for an iterative process between different research activities, empirical data and theory [22; 23]. A demarcation of the study are consumer products such as beverages and cosmetics where the primary package by definition often is the differentiator.
The literature review entailed previous research primarily conducted at the Division of Packaging Logistics, at Lund University, and an extensive review of academic articles on innovation and new product development in relation to supply chains and packaging. The empirical studies entailed three ongoing case studies that advance understanding as to why this non-integration still exists and why the potential of packaging innovation per se is so little explored. The case study method was chosen since the research focus involves numerous variables and relationships in their contemporary setting with research questions of why and how [24]. The first case (A) was conducted in a global consumer product company; the second (B) in a global technology and communications company, and the third (C) in a global network technology company. The case companies were chosen to address different products/packaging solutions such as high-end and low-end product/packaging and complex/assembled packaging versus homogenous/non-assembled packaging. This was done to enable comparisons of packaging solutions aimed at consumer products. Empirical data was mainly collected via interviews with managers responsible for product and packaging development as well as innovation, but also from studies of internal company documents. While the results cannot be statistically generalized, they provide theoretical generalizability along with other studies [14; 25] in the areas of business and product design development, packaging and logistics. The contribution of the research conducted will aid, through the research propositions, to further improve packaging logistics design and development [26; 27] and the innovation management areas.

3 THEORETICAL FRAMEWORK – PACKAGING

Packaging is, as suggested by Saghir [28], a coordinated system of preparing products for safe, efficient and effective handling, transport, distribution, storage, retailing, consumption and recovery, reuse or disposal combined with maximizing consumer value, sales and profit. The basic functions of packaging are, according to Paine [29], to maintain product quality, meet customer or packaging users' needs (including producers and packers of products to retailers and consumers), meet production and packaging line requirements, communicate and sell and meet legal and regulatory requirements including the whole solution – from primary to tertiary packaging (se figure 4). Packaging does not only include the physical package but also the processes associated with the actual packing, handling, unpacking and display [29; 30]. Hence packaging influences and affects both business effectiveness (e.g. marketing aspects, communication and sales) *and* efficiency aspects (e.g. efficient handling, convenient return flows) [27; 31] as illustrated in Figure 1.

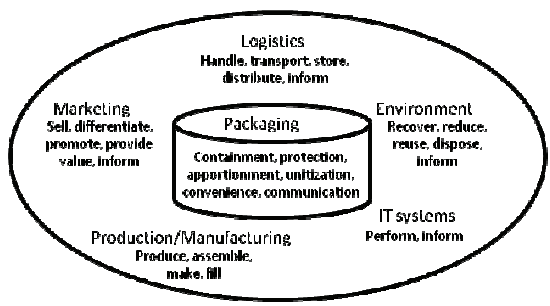

Figure 1: The primary and secondary effects of packaging. Modified from Saghir [27 p. 61] and Nilsson & Pålsson [32].

3.1 Packaging design and development today

In spite of the increasing importance of packaging, not least from a marketing and logistics perspective [9; 10], research shows that when a package is needed, considerations are seldom made for it during

the actual development of the product [9; 10; 18]. Surveys of 60 manufacturing companies in Sweden, in the mechanical, food and pharmaceutical areas show that the initial definitions and specifications of the package are frequently performed by the product development teams during the later parts of the product development process [33]. Figure 2 represents the most common approach in industry, and as suggested by the majority of product development literature (if mentioned) (i.e. packaging is treated in the final phases in the development when prototypes are being made and issues of ramp-up and logistics are on the agenda) [34].

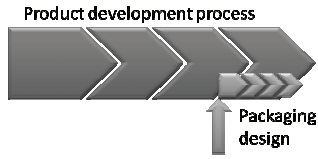

Figure 2. The common way of handling packaging issues in product development – as something added on in the last phases of development

In addition, Bramklev and Hansen [35] and Saghir [27] point out the lack of integrated design and development of packaging in relation to the logistics, or supply chain, system. The awareness of conditions further down the supply chain is often limited when product design decisions are taken, hence influencing the choice of packaging. To quote Saghir: "*Packaging represents the single most important interface between the products and the logistics system, and it can thus be used as a vehicle for enhancing operational efficiency. Packaging also represents an important interface between the different actors in the supply chain and hence influences the effectiveness of these companies. The marketing and consumer interface of packaging determines the effectiveness of a supply chain*" [27 p. 125]. This has also been pointed out by Lee and Lye [36] and Twede [19] as they all recognize that packaging influences supply chain efficiency. It is a matter of fact that products are almost never handled throughout the supply chain whereas packed products are. The main actors in a consumer product, or retail, supply chain are depicted below (Figure 3). The design and development of the different types of packaging needed are normally decided upon by the product manufacturer [18].

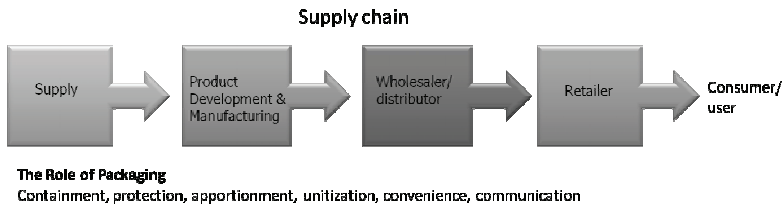

Figure 3. The actors and role of packaging in a supply chain perspective

In cases where product manufacturers outsource their package development to package manufacturers, the latter traditionally assign themselves the role of suppliers, thus entrusting the cooperation initiative to the product manufacturing industries [18]. According to Paine [9] packaging manufacturers then fall into the trap of providing what is asked for instead of developing and designing what is really needed. This is in line with the findings of Olander-Roese [37] in her study of paper packaging manufacturers. Equally, Saghir [27; 38] found little evidence of joint and collaborative efforts on packaging/packaging logistics issues between actors in the supply chain. Communication between these actors was mainly carried out on an operational level as an emergency measure when problems occurred. Particularly neglected according to Klevås and Saghir [25] is the interdependency of the design of the primary packaging with the secondary and tertiary packaging used in the supply chain. The different levels of packaging are depicted in Figure 4.

In cases where product manufacturing companies had their own designated internal function, or department for packaging development, the same non-integration of product and packaging design and development is found [18].

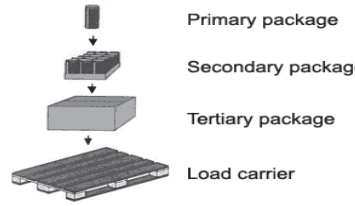

Figure 4: The different levels of the packaging system. Derived/modified from Dominic et al. [39 p. 61]

3.2 Unrealized potential of packaging integration and innovation

According to Paine [29] better packaging can reduce cost, increase turnover, reduce damage complaints, reduce waste and more. Hence, the package does not only preserve the quality of the main product, but also provides an opportunity to increase customer value: "*The opportunity to design innovative packaging can bring large benefits to consumers and producers. The multifunction of packaging is therefore not only a device for protecting the content during the distribution system, but even an important tool in the marketing mix*" [10 p. 681].

Previous studies show that there is more to be gained from the integration of packaging development into the development of new products and from integrating logistics and packaging systems – unexplored dimensions of packaging innovations. According to empirical research, conscious and integrated design and development of product and package has positive effects on resource utilization, logistics processes, costs, time-to-market and customer value [25; 35]. Figure 5 represents the suggested generic model by Bramklev et al. [14] in which packaging and product are developed concurrently in an integrative manner.

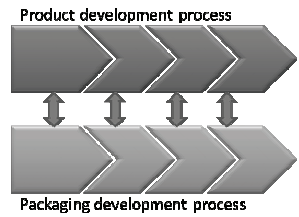

Figure 5. Concurrent product and packaging development as suggested by Bramklev et al. [14].

Klevås and Saghir [25] suggest a design for packaging logistics approach where supply chain requirements and estimated packaging logistical performance measures (time, quality, cost) and logistical requirements (transport system, inventory system, warehousing system, order processing system) are included in the early phase of product development – when the principal form, feature and functions are decided upon as depicted in Figure 6.

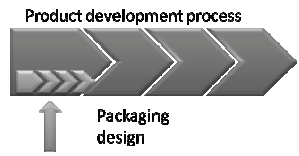

Figure 6. Integrating packaging design in the early phase of product development

Klevås and Saghir [25] further point out how relatively small changes in the product and packaging design can affect not only the efficiency and effectiveness of packaging logistical activities but also the whole supply chain.

Many authors have suggested an integrative approach when innovating and/or developing and designing new products as a prerequisite for long-term success [40]. Koudal and Coleman [41] argue

that the product development, supply chain and customer operations (i.e. marketing) need to be synchronized to ensure success. They argue that packaging is, or should be considered and integrated in the product development process, the supply chain/logistics development process, as well as the marketing development process. Packaging innovation is a potential area not only for the individual company but primarily for all actors in a supply chain.

In a previous survey conducted among 24 respondents in Swedish retail supply chains (eight packaging suppliers, eight food companies, two carriers and six retail organizations), all respondents agreed that there was potential for improvements in their organization via innovations in the packaging system [27]. However there were different priorities between the upstream side of the supply chain and the downstream side, also with regard to the different levels of packaging where primary and secondary packaging played different roles among actors. Achieving a high marketing potential was more important than lowered logistics cost in trade-off, particularly among producers and retailers. At the same time the packaging line efficiency of a primary packaging was more important to the producers and the shelf stocking, and sales promoting aspects were more important for the retailer. The majority of producers and all of the involved carriers as well as retailers further identified logistics as an important and potential area for innovation.

However, in spite of an identified potential for packaging innovation not only for the individual company but for all actors in a supply chain there is still limited evidence in the literature, or industry, of such integration even in industries where packaging and logistics are central factors as identified by both Saghir [27] and Bramklev [18].

The definition of what innovation means varies but is often referred to as a commercially favorable change in the products or services an organization offers and/or change in the ways in which these are created and delivered [42; 43; 44]. Moore [45] emphasizes the need to align the type of innovation with the market development life cycle and suggests eight definitions, ranging from disruptive innovation to product and process innovation to business model innovation. According to the *Oslo Manual* [46], "*An innovation is the implementation of a new or significantly improved product (goods or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations*" (p. 46) and "design" is defined as an integral part of the development and implementation of a product innovation.

Irrespective of what type of innovation is regarded, many academics argue that innovation needs to be managed [42; 43]. Successful innovation management according to Tidd et al. [42] depends on four major clusters of routines, namely: strategy, effective implementation mechanisms, supportive organizational context and effective external linkages. Building such linkages outside the organization is key to identifying resources and implementing innovations. This is in line with what other authors argue, suggesting that innovation is a process of know-how accumulation, or learning, from markets and through alliances also working with supply chain partners as well as others that may be significantly different from those a firm is accustomed to working with [40; 44; 47].

4 EMPIRICAL FINDINGS

As previous research has shown, the integration, or non-integration, of packaging and product development and supply chain processes impacts internal efficiency as well as customer value. Descriptions and initial findings of the three ongoing case studies focusing on packaging innovation are presented below.

4.1 Case A

The first company, a global consumer product company also portrayed in the introduction of this article, claims that the packaging has been "… *unfairly treated*…" as commented on by one director of product development and innovation and has not been a parameter in the product development process. The company has tried for ten years to integrate packaging competence, both in terms of personnel and in the product development processes without any success: "*The packaging is not part of the mindset of the people in the organization*…". Only in the last two, three years has there been a slight change.

The recent change has been driven mainly by a customer insight field study conducted by two employees. In this study, product segments targeting business customers (and their in-store or on-site consumers of the products) were observed from production to consumption, particularly considering and observing the role of packaging. Its role has primarily been to contain and store the product and

not a marketing or customer value-adding tool. For example, products for everyday use in the service industry and entertainment areas are packed in traditional cardboard boxes, in turn transported, carried, stored and unpacked by several people before reaching the end user. By observing this flow, a new solution is under development which will increase customer value through improved handling, storing and unpacking features of the package.
For the company, important conclusions from this study were that many internal "*established truths*" about the role of packaging were wrong. The transport routes of the product/packaging were much longer and the ways of storing the product/package (from production to actual consumption) were much different than previously believed. "*Our attitude has been, once the customer has purchased and received the product, which includes the packaging, it is no longer our responsibility*…" as stated by the director and compares this with IKEA whose policy is that they (IKEA) are responsible for the packaging until it is no longer needed in the home of the final consumer or even at the point where it is reused or disposed of.
In reflecting on the resulting integration of packaging and the product development process the following advantages were identified: decreased time-2-market, improved logistics solutions and improved marketing aspects, among other. Another important finding was that it is difficult to ask the customer what they need, as they usually, due to the principles of dominant logic, are adapted to a certain system and have few creative ideas about how to change it. Hence, the consumer insights from really studying the interaction between the packaging and the users in the field proved invaluable.

4.2 Case B

The second company, a global technology and communications company, has been working to integrate packaging in the product development process. In comparing their product range with other consumer retail products the packaging has so far had a more limited role in marketing the product than for food products, for example. In the retail shop it is the product, not the packaging, which is displayed even though the product is purchased in packed form. In the future, however, the packaging might play an even more important role in terms of communication when new distribution channels require the product to be kept in the packaging and not displayed as it is today. Furthermore, the packaging has been identified as a potential for enabling reduced costs, increasing customer value and improving logistics solutions along the whole supply chain. The process of integrating packaging and the product development process is, however, moving slowly. One reason is believed to be a general unawareness in the company of the business opportunities inherent in packaging. On the internal agenda a number of issues have been raised to address this, from the future communicative role of packaging to issues of internal cooperation between relevant departments to cooperation with third party logistics providers and customers.

4.3 Case C

The third company, a global network technology company working with both consumer and business products decided recently to investigate the potential of developing the packaging solutions they had for some of their mature products. In their product development process, the package is normally considered towards the end and then developed by a packaging designer consultant. The major requirement of the solution is to protect the product in handling and transportation. The products are manufactured and assembled in South Asia and transported by air to Europe and the USA. When addressing the packaging again, the team working with package redesign could easily reduce "air" in the primary package by ten percent and increase apportionment on pallets with even greater numbers. However, by also reconsidering the design of the product the potential in volume reduction proved even greater which lead to a further redesign process of the product. The tentative result of the two concurrent processes shows a 35 percent reduction of volume in each primary package leading to more products per pallet and air transportation (i.e. reduced costs and improved efficiency). The new packaging design also improved handling in distribution centers and the environmental impact of both transportation and handling was lowered, benefitting all actors in the supply chain.

5 DISCUSSION

In spite of good examples where packaging and product design and development are integrated or where packaging itself has contributed to innovative solutions for increased supply chain effectiveness and efficiency, packaging remains a largely unexplored potential. Sandom [48] claims that many big

brands still see packaging purely as a "cost of goods" necessity: "…*something that transports the product to the shelf, to the home and to use before it finally ends its journey in the bin"* (p. 20). On the contrary Sandom argues that "smart companies" realize that well thought out packaging ads more value than cost.

In all cases (A-C), packaging is foremost designed and developed to protect the product and enable transport and handling and does not play a crucial communicative role at the point of purchase. It has, to paraphrase Sandom, been regarded as a cost-adding rather than value-adding factor. Yet there is an awareness that packaging has an impact on supply chain effectiveness and efficiency. In Cases A and B there are identified potentials for the integration of packaging and product development processes as well as packaging driven innovation, contributing to increased customer and consumer value. Why then, is the potential of integrated packaging and product development realized to such a limited extent and why is the potential of packaging innovation so unexplored for supply chain effectiveness and efficiency?

Firstly, on the process integration issue, Bramklev [18] has identified a lack of a generic package development process and a lack of an integrated product and package development process for which she suggests a concurrent and integrated stepwise procedure (Figure 5). Klevås and Saghir [25] address the lack of logistics and supply chain considerations in product/package design and development and suggest a design for a packaging logistics approach where supply chain requirements and estimated packaging logistical performance measures and requirements are included in the early phase of product development (Figure 6). The findings in Case C and previous empirical research [12] demonstrate that companies who do implement and integrate these processes achieve positive results leading to the first proposition.

Proposition 1: *Implementing a generic package development process and a concurrent process integrating package design and development, with the corresponding product and/or logistics processes will result in both increased effectiveness (i.e. enhancing customer experience, improving sales, communication and branding to customers and consumers, etc.) and efficiency (i.e. ease handling, logistics, traceability, protection, etc.).*

The companies in Cases A and B experienced difficulties integrating packaging and product development processes as well as taking the supply chain into consideration when developing or improving such solutions. However, there appear to be other aspects hindering integration or potential innovation referred to as "lack of seeing" or "mindset" in all the cases. This is identified by Bramklev and Hansen [35] who point out the need for a particular mindset in order to enable supply chain improvements: "…*integrated product and package design benefits the logistics activities of those who adopt the mindset and affects costs and quality negatively when this mindset is neglected*" (p. 10). They do not, however, explain or define what a similar mindset is but it can be understood as a set of established assumptions within an organization [49].

The supply chain perspective per se holds in it a number of assumptions as to how to achieve the next generation competitive advantage, not least with regard to the process – through collaboration – and the perspective – through taking the perspective of more actors such as suppliers and the customers' customer further upstream or downstream in the supply chain [1; 50; 51]. Understanding the perspective of the customer and collaborating internally and externally – with other actors – are equally important prerequisites for innovation [42]. However, previous research shows that there is little evidence of such integration or collaboration, internally or externally, in the development of packaging solutions as found by a number of authors [18; 27; 52] in spite of identified potential benefits. Based on this discussion we suggest *Proposition 2: A mindset which accepts and welcomes internal and external collaboration between functions, departments, suppliers and customers is more likely to succeed with the actual integration of package design and development, with the corresponding product and/or logistics processes integration, as well as achieving the benefits thereof.*

Secondly, on the unrealized potential of packaging as a driver for innovation there is little evidence of packaging being one; the studies on integrated packaging and product design [14; 15] focus primarily on the cost reducing aspects of a non-integration. In Cases A and C, however, the innovation potential is realized by first redesigning and developing the packaging alone. In other words the product itself needed no further development in order to increase sales, gain more efficient distribution and/or new market channels: the packaging in itself was the means for innovation. In Case C as well as in the Glimma case [12] the development of a new package further lead to redesign of the product. Hence a

packaging driven development of both packaging and product as depicted in Figure 7 that not only decreases costs but also adds value to actors and users in the supply chain.

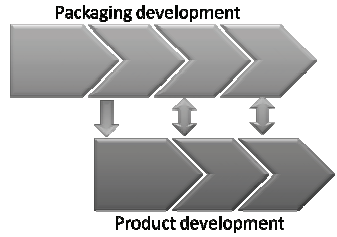

Figure 7. Packaging design driven packaging and product development

In considering the positive effects of the extensive "customer insight" field studies carried out in Case A, and the identified lack of seeing the business opportunity inherent in packaging in Case B, we argue for improved tools or models for identifying the aspects of effectiveness improvements and business opportunities. Sawhney et al. [53] argue that in spite of companies viewing innovation as critical to corporate success many have a mistakenly narrow view of it: "*They might see innovation only as synonymous with new product development or traditional research and development*" (p.75). The quest for every company is exploring and exploiting business opportunities in manners as efficient and effective as possible. The Case A company had been focusing on improving product quality and value for their customers for many years and were about to do it one more time (i.e. making small adjustments in existing products). Then the question was raised about packaging which totally shifted their focus, opening new perspectives on how to add customer value and improve sales through packaging.

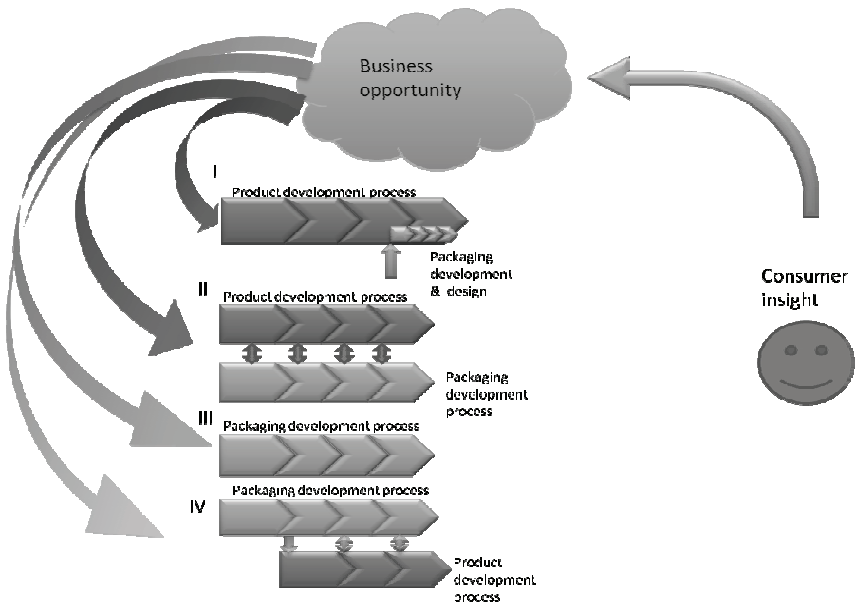

Figure 8. Four different ways of approaching and realizing business opportunity driven innovation with packaging design and development

We argue the need for a broader perspective in product development processes so that packaging, like product development is regarded from the perspective of business opportunity (Figure 8). Hence, the following ways can be considered in realizing business opportunities: packaging design and development can I) remain as a consideration towards the end of the product development process, II)

be integrated concurrently with the development phases of products, III) be an innovation potential in itself (no changes to products), and IV) become an innovation driver from which redesign of products can be made and improve the packaging and products offered and sold. We therefore propose:
Proposition 3: In the quest for realizing business opportunities packaging should be considered a mediator for innovation and thus developed and designed in such a way.
Proposition 4: By focusing on packaging when realizing business opportunities, the possibility for redesigning the involved products should be considered during the packaging development and design process.

6 CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In this paper we have reported on the potential of packaging as a driver for innovation and perspectives on the limited realization of integrating packaging and product development and design, from a supply chain perspective. In answering the research questions, we have identified a willingness to integrate packaging and product development but a lack of integrated processes that also consider logistics, and supply chain aspects. Furthermore, there appears to be a need for a particular mindset accepting and welcoming intra- and interorganizational cooperation, prerequisites for integration as well as innovation. We would also argue that the innovation perspective is too narrow, focusing primarily on product development, while there is a lack of conceptual models of packaging in relation to business opportunities particularly considering effectiveness aspects.
The paper presents four propositions that contribute to the direction of further research and provide guidance for developers and designers when approaching and evaluating business opportunities putting packaging on the agenda. Further research is encouraged to test the propositions to provide a deeper understanding of the prerequisites and enablers for how to increase competitive advantage through packaging design and innovation for supply chain effectiveness and efficiency.

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