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# TRANSLATING LATENT TRENDS IN FOOD CONSUMER BEHAVIOR INTO NEW PRODUCTS

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## **Abstract**

For successful product development it is important to explore the latent changes in consumer behavior prior to the product development process. The identification of a latent trend before the manifestation moment can be achieved by trend analysis. Trend analysis delivers insights that explore the future in order to identify prospective consumers and new product ideas, but also includes a feeling for the currents in market and technology. Hence, the aim is to identify emerging weak signals in consumer behavior that have potential as large revenue opportunities when implemented into new products. Therefore, the objective of our paper is to provide a novel tool for this identification and how the identified trends can be translated into new products. Until now there is no such link described in the literature to the knowledge of the authors. The novel tool is constructed as a decision tree allowing food companies to make a sound decision about whether or not to start the product development process. Beginning with the question if the trend is new or not, the user of the tool will be led to one of the above described innovation types. Based on the result the company can decide whether to initiate the product development process in order to follow this trend or not. The choice of initiating the product development process should also depend on the firm's capabilities, resources, and profile. By means of examples the novel tool is explained and managerial implications are provided.

**Keywords:** New Product development, Trend analysis, Novel trend implementation tool

**JEL codes:** M31, O31, O32

## **1. Introduction**

The development of successful new products is the aim each forward-looking firm. This means innovative products which are accepted by the consumer, fitting into the firm's profile, and which are regaining the costs invested in the development of the new product.

An innovation can be referred to as an ongoing process of learning, searching and exploring resulting in four main types, namely new products, new techniques, new forms of organization and new markets (Lundvall, 1992; OECD, 2005). In our paper we will focus on the development process of new products while the other types of innovation are indirectly included

in this process. Further, we consider innovations being new to the firm and all degrees of innovation ranging from incremental to radical innovations types.

Acceptance by the consumer is considered the most important aspect for successful new product development. Hence, the innovative product must be both new and easy to comprehend for the consumer. Further, successful products involve a solution to a consumer's problem (Goldenberg et al., 2001; van Kleef et al., 2002). If the consumer cannot connect either the technology or the use to something familiar, they will not accept the innovation (Mann, 2005). Therefore, it is necessary to explore the latent changes in consumer behavior prior to the product development process. These latent changes in consumer behavior can evolve into hypes or trends. The difference between a hype and a trend are that the first is only of short duration while the other is a relevant systematic change over time which appears globally and results in counter trends (Ammerlaan, 2007; Grunert, 2006; van Steenis, 2004). Thus, a trend is relevant when it is resulting in consequences for the society (van Steenis, 2004). For instance, obesity has clear social consequences, because an increasing number of obese people will suffer from health problems, the workload of nurses will be higher and more people will become unemployable due to their obesity (van Lieshout and Leurs, 2007). Further, a trend is presented by a general underlying movement which cannot be explained as coincidences and hence, must be considered as a systematic change (Grunert, 2006; Prevette, 1997). In addition, this systematic change must occur over a certain time, since trends do not appear suddenly. Trends need time to develop (Ammerlaan, 2007; Feder, 2006). A trend can only be identified at the moment it is already manifested after sufficient, undeniable, long and strong enough changes have occurred (Wilkinson Enns et al., 2003). From that moment the trend is clearly noticeable and spreading from one subgroup of consumer or product category to the whole society. Hence, a trend is global throughout all consumer groups and product categories and establishes mainly in all developed countries (Abraham and Hines, 2006; Ammerlaan, 2007). Finally, every trend is also characterized by the appearance of counter trends. A counter trends evolves from a dissatisfaction with the manifested trend (Ammerlaan, 2007; van Steenis, 2004). For instance, slow food established as a counter trend to the fast food movement, regionalization is a counter trend to globalization etc. Hence, per definition there are always at least two movements when a trend has been manifested, namely the trend and at least one counter trend.

The identification of a trend before the manifestation moment can be achieved by trend analysis. Trend analysis delivers insights that explore the future in order to identify prospective customers and new product ideas, but also includes a feeling for the currents in market and

technology (Abraham and Hines, 2006; Dougherty, 1992). Another task of trend analysis is to estimate possible consequences of occurring events (Dougherty, 1992). For instance, the trend in taste towards a preference for fresh foods may reduce the demand for prepared foods. In addition it is opening up new food opportunities. Hence, it is important that a set of trends is observed, since the advance along one trend direction may conflict with an advance along another trend (Mann, 2005). This requires analyzing possible conflicts between trends in relation to the timescale of the innovation process.

Trend analysis goes beyond any specific product, but helps to narrow the search to a feasible set of attributes that any new product should contain. Knowledge about trends links the choices of attributes by indicating the direction(s) in which a product category might evolve over time (Dougherty, 1992). Finally, the aim is to identify emerging weak signals in consumer behavior that have potential as large revenue opportunities when implemented into new products (Abraham and Hines, 2006).

The objective of our paper is to provide a sound base for understanding successful product development and to demonstrate the usefulness and importance of the novel tool we developed for the identification and translation of latent trends into new products. Until now there is no such link or tool described in the literature. In the following chapter, an innovation typology for new product development is developed. Subsequently, the novel trend implementation tool is developed, followed by the description of necessary key activities in the product development process. Finally, conclusions are drawn, managerial implications are provided, and future research indications are presented.

## **2. Innovation typology for new product development**

In the scientific literature many different types of innovations are described. However, these types are often synonyms for the same kind of innovation (Garcia and Calantone, 2002). In this paper we focus four main categories of innovation related to marketing and technology perspectives: incremental innovation, market driven innovation, technology driven innovation and radical innovation, derived from the work of Danneels (2002), Garcia and Calantone (2002), and Veryzer (1998). It is important to mention that this typology is relative to the firm. The decision about which type of innovation is applicable for a firm is depending on the firm's resources and capabilities in market approach and technology (Dougherty, 1992). An innovation can be radical for one firm, but incremental for another firm. This aspect becomes clear in

Figure 1. The result of the innovation process will be the same for both firms, but the way will differ significantly.

## **2.1 Incremental innovation**

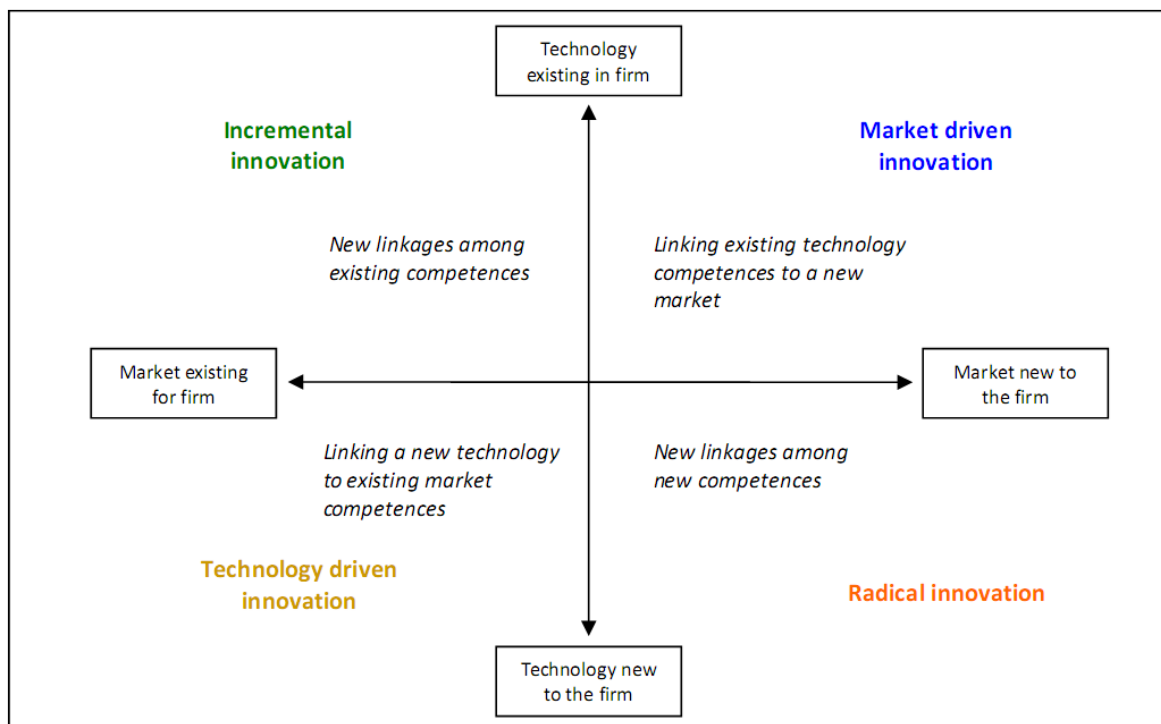
Incremental innovation is achieved by adding new features, benefits or improvements to a product, produced with existing technologies and for existing markets (Garcia and Calantone, 2002). The development of incremental innovation is an easy defined task, because the firm uses a synergy of knowledge about existing markets and skills of a familiar technology (Song and Montoya-Weiss, 1998). Thus, for most firms incremental innovation is a tool for sustaining competitiveness in a technology mature market. In addition, streamlining the procedures of existing technology can lead to anticipating and/or early reaction to threats and opportunities of a shift to new technologies (Garcia and Calantone, 2002).

Incremental innovation includes product improvements, repositioning, cost reduction, me-too products, and attribute dependency changes<sup>1</sup> 1 Attribute dependency change = Creation of new relationships between product attributes (Example: non-dropping candle) (Schmidt and Calantone, 1998). Products achieved by incremental innovation offer minor improvements or other benefits to the consumer, such as more convenience, simplified usage or being less expensive (Christensen, 1997). Incremental innovation is mainly short term focused (between 0.5 and 2 years) and developed in a linear and continuous innovation process (Leifer et al., 2000). Incremental innovation provides a relatively low level of uncertainty during its development. However, at the stage of introducing the incremental innovate on to the market there is the risk that the consumer will not recognize a difference with other existing products. Thus, the consumer acceptance will be low. Another risk can be that the producer is obliged to follow a low-cost approach, which will lower the profit margins (Mann, 2005).

## **2.2 Radical innovation**

Radical innovation embodies technologies as well as market aspects which are new to the firm. This type of innovation is often not developed as a respond to a specific need but rather in order to create a new demand at the consumer (Garcia and Calantone, 2002). Hence, radical innovations are not a natural evolution of already established products; it is a discontinuity of the existing. Furthermore, radical innovations are considered to form a base for establishing and dominating new markets (Garcia and Calantone, 2002; Rice et al., 1998).

Radical innovation is not distributed uniformly over time like incremental innovation. Hence, this innovation process is characterized by multiple discontinuities or gaps that must be bridged (Leifer et al., 2000). Changes in the process take place as a reaction to unanticipated events, outcomes, and discoveries. Consequently, the uncertainty of a successful innovation process is the highest in the beginning of the process for radical innovation. The most important aspect related to radical innovation is to consider that the consumer will not accept an innovation which is too new for him. It is necessary that consumers can connect the innovative technology or application to features they are already familiar with (Mann, 2005).



**Figure 1: Link between firm competences and types of innovation (based on Danneels, 2002; Garcia and Calantone, 2002; Veryzer, 1998)**

### ***2.3 Market driven innovation & Technology driven innovation***

With these kinds of innovations the firm is using either an existing technology or an existing market as an initiator for building a new competence. This provide the firm with a faster and less risky way to grow and renew itself (Hamel and Prahalad, 1994). In order to build up market driven or technology driven innovation it is necessary to turn away from a product-centric view in the firm. Instead, it is necessary to explore the capabilities on which the product is based (Danneels, 2002). This is a difficult step for most managers. However, competences are not

product-specific. Therefore it is worth to take the effort to 'delink' the competences from a certain product and imagine how the competences can be applied in new product areas (Hamel and Prahalad, 1994; Teece, 1982).

For developing new technological competences the firm can rely on its existing customer competence. Most of the technological driven innovations arise as a response to requests from customers to provide them with additional products (Danneels, 2002). The Canon Laserjet, or the digital light projector are examples of technological driven innovations. Here, new technologies (e.g. printer technology and laser technology) are linked in order to develop a new product to an existing market. These examples refer to line extensions (Garcia and Calantone, 2002).

In contrast, market driven innovations embrace two major steps. The first step is to 'delink' the technological competence the product is embedded in. However, this is not an easy task to carry out, because of the tacitness of the technology (Danneels, 2002). The second step is to 'relink' the technological competence with a customer competence new to the firm. For better understanding the example of early fax machines is used. Existing technologies (information technology and scanning/printing technology) are combined and linked to new customer competences, i.e. markets (Garcia and Calantone, 2002).

Related to both market and technology driven innovations four trend related templates can be distinguished: subtraction, multiplication, division, and task unification (Goldenberg et al., 2001). Subtraction is the replacement of an essential internal component as well as its associated function. The product will appear in a new look. An example for a technological driven innovation is a computer mouse with two in place of three buttons. Multiplication embraces copying the function of product attributes within a product. An example for multiplication is the razor with more than one shaving blade, which is also a technological driven innovation. Division is to separate the product in some of its components. This requires market driven innovation in order to identify the parts which can be removed and embrace a benefit for the consumer. Finally, task unification is the allocation of a new function to a product. The example of the heating wire in the back window of a car which is also used as a radio antenna includes both market and technological driven innovation.



## ***2.4 Advantages and disadvantages of the different innovation types***

Each of the four aforementioned types of innovation has certain characteristics which facilitate or hamper its implementation (Datamonitor, 1996; Ernst & Young / ACNielsen, 1999). An overview is provided in Figure 2. The barrier to enter and the inherent risks of implementation of the innovation range from low (incremental innovation) over moderate (market and technology driven innovation) to high (radical innovation) (Datamonitor, 1996; Ernst & Young / ACNielsen, 1999). Each innovation type has certain potentials. Incremental innovation has potential for product re-launch, market driven innovation has potential for business growth, while technological innovation has potential for cost reduction. Finally radical innovation offers the potential to dominate a new market. A product re-launch is useful if a firm's aims at me-too products and change of the attribute dependency, the latter referring to the (non)existing link of two product attributes (Goldenberg et al., 1999). An example for this is the case of Diet Pepsi (Datamonitor, 1996). Under radical innovation, really innovative products are considered, such as Quorn, which has recently entered the global market. Under market driven innovation, seasonal or temporary products can be summarized including equity transfer products, which are products that are new to a category but introduced by a known brand and hence, recognized by the consumer (Keh and Park, 1997). On the contrary, technological driven innovation comprises conversion and substitution products, which are replacement products for already existing products in the market (Ernst & Young / ACNielsen, 1999). Besides, there is combination possible between market and technology driven innovation, namely when technology is combined with market strength which can result in product line extension. Such products are a new version of a product within the same category, providing new flavors, forms or sizes consumer (Keh and Park, 1997). Examples for market driven innovation are spreadable butter or Snapple (a combination of carbonated fruit tea and juice) (Datamonitor, 1996). Technology driven innovations are ambient ready meals or Instant tea (Datamonitor, 1996). Mars icecream is an excellent example of a product line extension (Datamonitor, 1996).

## **3. New model for translating trends into new products**

The two most important inputs for innovative ideas are market research and trend analysis (Earle, 1997; Zhou et al., 2005). In the present paper the focus is particularly on how trend analysis contributes to the generation of innovation.

While market research focuses on existing customer needs and requirements, trend analysis is delivering insights that explore the future in order to identify prospective customers and new product ideas, but also includes a feeling for the currents in market and technology (Abraham and Hines, 2006; Dougherty, 1992). If a firm is paying too much attention on today's customers it can miss opportunities with tomorrow's customers (Abraham and Hines, 2006). However, today's customers are a valuable source for new product ideas, based on the reported problems with current products and other market-based information (Franke et al., 2006; Goldenberg et al., 2001; Herstatt and von Hippel, 1992; Von Hippel, 2005).

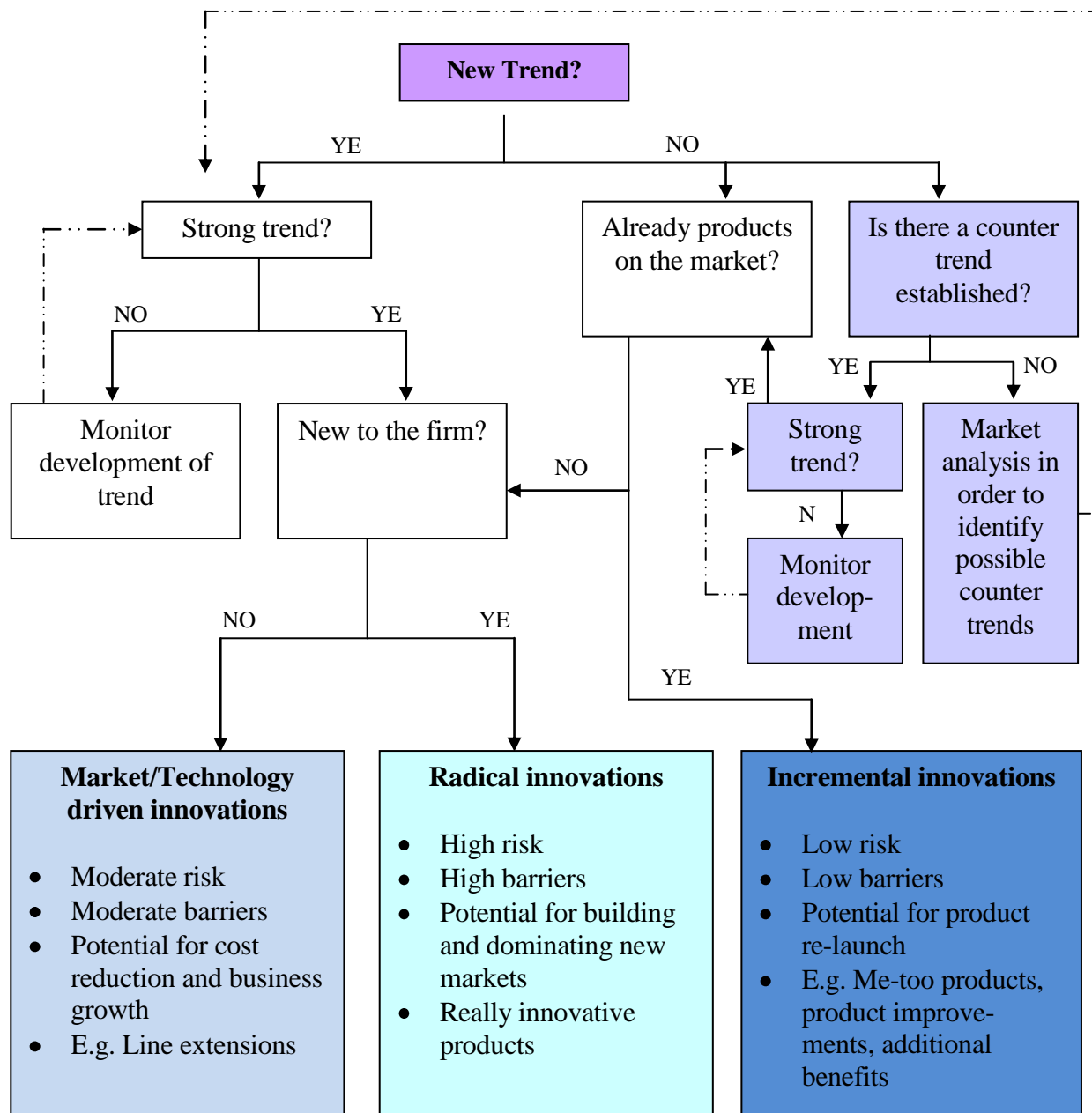
Trend analysis, in turn, goes beyond any specific product and facilitates the identification of a feasible set of attributes that any new product should contain. Knowledge about trends links the choices of attributes by indicating the direction(s) in which a product category might evolve over time (Dougherty, 1992). By means of trend analysis emerging weak signals in consumer behavior can be identified which might become trends and have the potential to become large revenue opportunities (Abraham and Hines, 2006). Thereby, the usual idea generation process consists of an attempt to mimic other ideas rather than to generate novelty (Goldenberg et al., 2001). Hence, it is important not to copy other ideas or trends but to come up with really new ideas. The main task of trend analysis is to estimate possible consequences of occurring events (Dougherty, 1992). For instance, the trends in taste towards a preference for fresh foods may reduce the demand for prepared foods and/or providing opportunities for new food products. Hence, it is important that a set of trends is observed, since the advance along one trend direction may conflict with an advance along another trend (Mann, 2005). This requires also to analyze possible conflicts between trends in relation to the timescale of the innovation process.

Based on the innovation typology developed in a previous section and the characteristics of trend analysis, a tool is developed to allow the decision whether to follow a trend to develop new products or not (Figure 2). Beginning with the question if the trend is new or not, the user of the tool will be led to one of the four innovation types. Based on the result the user can decide whether to initiate the product development process in order to follow this trend or not. The choice of initiating the product development process need to be done under consideration of the firm's capabilities, resources, and profile. In the next paragraphs the decision tool for trend implementation is described in detail.

The starting question is to decide if the discovered trend is a new trend or not. This means if there has been a relevant systematic change over time which appears globally (spreading

throughout consumer groups and product categories) and results in counter trends a new trend might have been discovered. For a new trend, the left side of the scheme should be followed. The subsequent question is whether the new trend is already a strong trend, with other words if its appearance has already spread throughout several consumer groups and product categories. If it hasn't and there is uncertainty whether the development is strong enough, the trend should be monitored and periodically evaluated in order not to miss the point where other firms will take advantage of becoming market leader based on the new trend. Contrary, if the trend has reached the point of being certain that this trend includes large revenue opportunities, the following question should be if the knowledge and resources related to this trend are new to the firm. If the necessary knowledge and/or resources are not new to the firm market driven or technology driven innovation can be applied. If the new trend requires new market knowledge and new technology from the firm's point of view the development of radical innovation will be necessary.

If the trend is not a new trend, i.e. when the trend has manifested in all consumer groups and product categories, the right side of the scheme should be followed. On this side two questions occur. First, whether there are already products on the market and second whether a counter trend is already established. Regarding the first question, if there are already products on the market of the same firm or from competitors it is possible to develop incremental innovations following the trend. If there are no products on the market yet, the following question is whether the necessary knowledge and/or resources are new to the firm. This question is situated on the left branch of the scheme and the subsequent path described above should be followed. Related to the second question, the user of the tool should explore whether a counter trend is already established or not. If there is a counter trend already established, the user should explore if this is already a strong trend. If not, monitoring and periodical evaluation is necessary. If the counter trend is already widely established in consumer groups and product categories, the same path as for known trends is followed, starting with the question if there are already products on the market in relation to the counter trend. In the case there is no counter trend established yet, intensive business and market opportunity analysis should be applied in order to identify possible counter trends. By the time a counter trend is identified the left side of the scheme for new trends should be followed.



**Figure 2: Decision tool for trend implementation (own development)**

#### 4. Key activities for successful product development process

Based on the typology presented in the previous chapter it is the aim of this chapter to increase the understanding of how to approach the development of new products. Scientific research on best practices proofed that e.g. market learning differs significantly between different types of innovation. Based on a set of six key activities of the product development process (Song and Montoya-Weiss, 1998) different approaches for each type of innovation are described in this chapter.

#### ***4.1 The product development process***

The product development process consists of six aspects: strategic planning, idea development and screening, business and market opportunity analysis, technical development, product testing, and product commercialization (Song and Montoya-Weiss, 1998).

Strategic planning refers to the preliminary evaluation of resource requirements, market opportunities, and strategic directives, and integrating them into the innovation process. Idea development and screening is the generation, detailed representation, and assessment of potential solutions to the identified strategic opportunities. Business and market opportunity analysis is to carry out marketing tasks necessary for converting new product ideas into well-defined sets of attributes which fulfill consumer's needs and requirements. Technical development is the process of designing, engineering, testing, and building the desired physical product entity. Which will then result in product testing, which refers to testing the product itself and testing the individual and integrated components of the marketing and advertising programs. Last not least, product commercialization is another important aspect of the product development process. It is the coordination, implementation, and the monitoring of the launch of the new product.

In order to obtain successful product innovation it is important to consider all these aspects of the product development process. According to the type of innovation there is stronger emphasis on different key activities, namely those which have the strongest effects on the success of the new product development (see Table 1) (Cooper and Kleinschmidt, 1993; Song and Parry, 1997). Following, for each type of innovation the most important actions are listed and explained more detailed.

#### ***4.2 Key activities for new product development***

For each type of innovation different key activities are important for developing a successful new product (Table 1). However, product commercialization is very important for all types of innovation. Similar, idea development and product testing are also important for successful product development, but less important than other key activities, such as business and market opportunity analysis, strategic planning, and technical development.

For incremental innovations the analysis of business and market opportunities is a crucial determinant of the profitability, because this activity provides the necessary definition and positioning for the new product. Detailed market studies are crucial for identifying customer preferences, market potential, market trends, and competitive activity. For developing an incremental innovation the most important aspect to focus on is to determine the desired product features in order to establish unique selling features for differentiating the product from already existing ones (Song and Montoya-Weiss, 1998). Although many firms do not emphasize much focus on product commercialization, it is an essential aspect for developing successful incremental innovations. Therefore, it is important to focus also on a well-coordinated and monitored launch of the new product. In the opposite, less time should be spent on the strategic planning activities. These activities should be simplified and accelerated based on previous insights and success because incremental innovation engages familiar product technologies and markets (Millson et al., 1992). Empirical research points out that spending unnecessary time on strategic planning is even reducing the performance of incremental innovation (Crawford, 1992; Millson et al., 1992).

In contrast to incremental innovation, radical innovation strongly benefits from a firm's focus on strategic planning. Although it is difficult to accurately plan decisions for the radical innovation process in advance it is crucial to give some boundary guidelines to the uncertainties of the situation (Song and Montoya-Weiss, 1998). Furthermore, it is important to periodically review the strategy during the whole development process. For radical innovation, the focus should also be on product commercialization. An efficient and coordinated execution of product commercialization is a fundamental requirement for radical innovation (Song and Montoya-Weiss, 1998). For radical innovation the least focus should be on business and market opportunity analysis. Knowledge about business and market opportunities will evolve from incremental learning when consumer requirements and technological capabilities co-develop over time. Spending or rather wasting time and money on this activity will not contribute to the product development process, since consumer requirements are not yet well-defined and competitor competences are not clearly established. Yet, the product development process can be negatively influenced by turning away the focus from more important activities than the analysis of business and market opportunities (Lynn et al., 1996).

**Table 1: Action plan of key activities per innovation type for successful product innovation (adapted from Song and Montoya-Weiss, 1998)**

Rank	Incremental innovation	Radical innovation	Market driven innovation	Technology driven innovation
1	Business and market opportunity analysis	Strategic planning	Business and market opportunity analysis	Technical development
2	Product commercialization	Product commercialization	Product commercialization	Product commercialization
3	Technical development	Technical development	Strategic planning	Strategic planning
4	Idea development and screening	Idea development and screening	Idea development and screening	Idea development and screening
5	Product testing	Product testing	Product testing	Product testing
6	Strategic planning	Business and market opportunity analysis	Technical development	Business and market opportunity analysis

Market and technology driven innovations require a more divers orientation of the firm than incremental innovation (Garcia and Calantone, 2002). These two types of innovation are settled between incremental and radical innovation. Hence, the different key activities are overlapping with incremental or radical innovation.

More specific, for market driven innovation the main key activities are business and market opportunity analysis and product commercialization, just like for incremental innovation. However, for market driven innovations technical development is least important, because this type of innovation builds on technology competences existing in the firm. More emphasis should be paid to strategic planning in order to provide some boundary guidelines to the uncertainty of the unknown competences.

In contrast, technology driven innovation is very dependent on technical development, in order to develop competences related to technologies new to the firm. The second key activity for technology driven innovation is product commercialization, likewise for all types of innovation. The analysis of business and market opportunities is least important for technology driven innovations, since this type of innovation is mainly based on new requirements and needs from existing customers. Similarly to market driven innovation, it is important to focus strategic

planning in order to provide boundary guidelines to the uncertainty of the unknown competences.

## **5. Exemplary application of the trend implementation tool**

By means of four trends the application of the trend implementation tool is described shortly in this section.

### **5.1 *Trends leading to Incremental innovation***

The way and translation of a trend into incremental innovation is explained with the example of the health trend. The health trend is already a quite mature, i.e. its appearance has already spread throughout all consumer groups and product categories and this trend has become a large revenue opportunities for many firms and years now. For instance, *Diet Pepsi* was introduced in 1964 as a low-calorie variant of Pepsi-Cola due to changing dietary habits in the American population (PepsiCo Inc, 2005).

This trend has known a steep increase of interest during the last three decennia. This means, a firm which is interested to follow this trend, is automatically directed to the right side of implementation tool as the answer to the first question ‘New Trend?’ is ‘No’. The subsequent question ‘Are there already products on the market?’ needs to be answered with ‘Yes’ and hence, leading directly to incremental innovation. This implies that the knowledge for product development of another new product in this category must be easily available either within the firm or within the market. In case the firm does not possess the knowledge and/or the capabilities to combine its existing competences, the success of the incremental innovation is predetermined to fail joining the other 72-88% of failing innovations in the food market (Song and Montoya-Weiss, 1998). Hence, for successful incremental innovation the most important key activity is a sound business and market opportunity analysis prior to starting the product development process (see Table 1).

### **5.2 *Trends leading to technology or market driven innovation***

If the trend is rather new, such as the convenient trend (Witteveen, 2008), the subsequent question is whether the trend is already rapidly spreading through more and more consumer groups and product categories or whether it is noticeable in only a few consumer groups or product categories yet. For the latter it is necessary, to conduct a sound and thorough market



analysis to evaluate whether the trend has potential to become a strong trend and hence is worth to translate into innovation, and in order for keeping ahead of competitors and becoming a market leader. At the moment that the trend accelerates, thus is spreading rapidly through consumer groups and product categories it is necessary to be aware if the firm possesses the skills, resources and capabilities necessary for translating this trend into innovation. If the firm is familiar with either the market or the technology the lower left side of the trend implementation tool is followed. Hence, market or technology driven innovation can be developed. Convenience is mainly translated in ready-to-eat and ready-to-heat products, on-the-road consumption and eating outside. Convenient products are characterized by easy to prepare, open, serve, combine, consume, preserve and/or take along (Witteveen, 2008).

In case the target market and consumer needs are very well known to the firm but the technology for responding to the consumer needs is lacking, technology driven innovation is applicable. The firm needs to acquire and develop the necessary techniques (see Table 1). For instance, assuming a firm is in the catering business and facing the just described situation, it would need to acquire the technique for producing new products for on-the-road consumption, in order to respond to the emerging consumer needs of more convenience. As mentioned above, technological driven innovations are mainly in response to requests from consumers (Danneels, 2002).

In case, a firm wants to apply a technology which is successfully used in one market to a new, unknown market it is necessary to first explore this new market and its needs (see Table 1). For instance, if a firm possesses e.g. a steaming technology which pre-cooks one kind of food uniformly and it wants to respond to the need for more convenient by offering whole pre-cooked meals, which just need to be reheated it would need to delink the existing competence in this technology in order to re-link it to the new market needs. In the example, this would mean that several kinds of foods need to be precooked in a way that they heat up uniformly and simultaneously when used by the consumer.

### ***5.3 Trends leading to radical innovation***

In the middle of the last century, a rapid growth in world population was predicted and researchers started to search for new food sources which would help to meet the predicted increase in demand in both, the developed and developing countries (Howells, 1997). It took about 20 years until an adequate source was found and research techniques allowed its

exploitation (Senker and Mangematin, 2006). Finally, a company called Rank Hovis McDougall brought a product called “QUORN”<sup>1</sup> on the market, responding to an upcoming trend towards ‘healthy’ alternatives to meat (Howells, 1997). Thus, a new trend was discovered and although it wasn’t sure, whether the predictions would hundred percent become true, this trend was monitored and at the same time responded to. The technology and the market were new to the firm, which led inevitably to the development of a radical innovation (left branch of the trend implementation tool, answering ‘yes’ to the question ‘New to the firm’). Based on a strategic plan (see Table 1), i.e. to find an alternative which would enable the food industry to cope with an rapid increase of food demand and which still possesses a sufficient nutrient and protein content, researchers went off to search the globe for such an alternative. At the end, an organism was found occurring naturally in the soil in a field in Marlow, Buckinghamshire which served as the first mycoprotein for producing a ‘healthy’ meat replacer (Marlow Foods Ltd, 2010). Although the predictions of a rapid growth in world population did not occur (Costa and Jongen, 2006), the new product entered the market successfully, convincing through associated benefits of taste, health, nutritious and convenience (Wheelock, 1993).

## **6. Concluding note and future research implications**

A company that aims at new product development needs to consider several aspects prior to the start of the development process. Most importantly, the new product need to be accepted by the consumer and fitting into the firm’s profile (Goldenberg et al., 2001; Mann, 2005). In this paper, a decision model is developed to operationalize the translation of latent trends into new products.

The feasibility and applicability of our model is illustrated by means of four examples from the food sector. Nevertheless, an innovation can be radical for one firm, but incremental for another firm. That means, although the result of the innovation process will be the same, the way will differ significantly. Hence, the decision about which type of innovation a firm wants to apply is depending on the firm’s resources and capabilities in market approach and technology. Therefore, managerial implications are provided for the application of our trend implementation tool for trend implementation to food companies. Managers who want to use our tool need to evaluate first their own situation carefully. Innovation is an ongoing process, which is not simply linear, but a complex process involving false starts, returns between stages, dead ends,

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<sup>1</sup> Brand name of a mycoprotein used for producing vegetarian protein food

trials and errors (Balconi et al., 2008; Kirner et al., 2009; Rothwell, 1992; Tidd et al., 2005). The better a firm is prepared for this process, the higher the chances will be to succeed in introducing a new product. Not only the identification of latent trends is important, but also the right focus on key activities in the product development process (as described in section 4). Although this tool was developed in a setting which involved food firms, in future research the applicability and feasibility should be tested in real case studies. Furthermore, a scientifically underpinned trend analysis tool which could facilitate and support the trend recognition at firm level, would be of major value.

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