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Review

# Improving internal communication between marketing and technology functions for successful new food product development

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In order to increase the new product development (NPD) success for novel food products, it is crucial to understand how information can be optimally disseminated within companies. This systematic literature review concentrates on factors influencing internal communication between market and technology experts within the NPD process from a food industry point of view. The review provides practical implications for improving internal communication in food companies and

identifies knowledge gaps. By focussing on optimising organisational structure, team composition, management support, and knowledge management, food companies can enhance internal communication between market and technology functions during the NPD process.

## Introduction

To succeed in a highly competitive market, food companies must develop new successful products valued by consumers (Barrena & Sánchez, 2012; Grunert, Larsen, Madsen, & Baadsgaard, 1996; Stewart-Knox & Mitchell, 2003). The new product development (NPD) literature explains the desired outcome of a new product development process as the commercialisation of a successful and profitable product within a reasonable time frame (Griffin & Hauser, 1996), and the most important determinant for successful NPD performance is having a superior product as perceived by consumers (Cooper & Kleinschmidt, 2007; Henard & Szymanski, 2001). Increased sales can only be realised if the product satisfies the needs of the target consumers (Costa & Jongen, 2006). Yet, a significant percentage of food products fail in the market causing high costs for the food companies (Gresham, Hafer, & Markowski, 2006; Rudolph, 1995). Although much research has emphasised the necessity of integrating ‘the voice of the consumer’ in NPD by focussing on external communication between consumers and companies, consumer information must not only be acquired, but also disseminated and applied within the company, calling attention to the importance of internal communication (Gresham *et al.*, 2006; Kohli & Jaworski, 1990). Improving the NPD process requires input from both market and technical experts (Calantone & Benedetto, 1988; Cooper & Kleinschmidt, 2007; van Trijp & Steenkamp, 2001), and it is therefore necessary to clarify how better communication can be established between the marketing and research & development (R&D) departments of a company.

The issue of internal communication has only scarcely been addressed in research conducted in the food industry. This review takes a food industry perspective on internal communication by considering on the one hand exchange of information between marketing and R&D during the NPD process, and on the other hand the factors that influence internal communication within the food industry or similar industries. The objective of this literature review is 1) to find out what are the barriers and facilitators of

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internal communication between technology and market/consumer experts and 2) to translate the current knowledge into practical implications for internal communication in the NPD processes in the food industry as well as 3) to reveal the existing knowledge gaps.

This review will concentrate on product innovation, and process innovation will hence not be dealt with. The NPD process is usually viewed as consisting of different sequential phases, and in this review Grunert *et al.*'s (1996) presentation of Urban and Hauser's theory, which divides the NPD process into four phases: *opportunity phase*, *design phase*, *testing phase*, and *introduction phase*, is used. Information about consumers and competitors is to be gathered by the marketing function in the first phase, communicated to the R&D function, used in the design and testing phase, resulting in a final product ready for introduction in the last phase. However, it should be noted that this sequential modelling of the NPD process serves a normative purpose. In reality, the NPD process is not a linear system, and often activities are occurring in parallel rather than in sequence, and interactivity in form of looping, iteration, and back-and-forth play is characterising each stage (Cooper, 2008; van Trijp & Steenkamp, 2001).

## Methods

This paper is based on a systematic literature review. The literature included was limited to peer-reviewed articles dating no longer back than 1990, with focus on product or technology innovation in the food industry or similar industries. Similar industries are characterised as low and medium technology SMEs, since the food industry mainly consists of SMEs (FoodDrinkEurope, 2013; Traill & Grunert, 1997). In the effort to find food related literature, cross-industry studies including food companies were also included.

The search was conducted in four databases: *ProQuest*, *Science Direct*, *Scopus*, and *Ebsco*, by using the keywords 'innovation', 'new technology development', or 'NPD' in the title or abstract (phase 1). In order to narrow down the results stepwise, an internal search (phase 2) for literature including 'communication', 'R&D', or 'cross-functional communication' was conducted. In phase 3, an internal search was made for literature including 'knowledge management' or 'market orientation' in title or

abstract. In *Ebsco* this phase was skipped since it revealed a too narrow number of results. In phase 4, an internal search was made on literature including 'NPD', 'food innovation' or 'communication'. This revealed a feasible pool of literature for *Scopus* and *Ebsco*, but for *Science Direct* 'internal communication' had to be added to narrow the results to a manageable number. For *ProQuest* an additional narrowing had to be made which was based on the search for 'food' and 'NPD' (Table 1).

The articles found ( $N = 1604$ ) were scanned based on titles and/or abstracts, and relevant articles ( $N = 28$ ) were extracted and read thoroughly in full length. In addition, relevant and central references within this literature were identified ( $N = 9$ ) bringing the total number of articles to 37. Of these, 13 articles specifically addressed the food industry, and 9 articles partially addressed the food industry by including food companies in their data collection. The remaining articles addressed industries considered to be similar to the food industry. These were included to support or challenge the findings. For literature to be finally included in the review it had to 1) conceptually, theoretically, or empirically address internal communication in the food or similar industry with regard to new product development, and 2) be peer-reviewed and published in a scientific journal. Most of the articles were excluded due to their focus on high technology industries or for not addressing internal communication with regard to new product or technology development.

The literature on innovation, especially in a special domain such as food, is scattered among different disciplines and therefore difficult to reach by systematic approaches in databases that cover only part of the material. It is therefore acknowledged that the literature screening criteria may have excluded relevant literature. However, in order to minimise potential omissions, different databases were used in the search and keywords for the different stages in the search process were discussed and agreed upon by the authors. Similarly, to reduce the role of subjective evaluation, the screening criteria for including or excluding the abstracts in the first round of extracted literature were discussed and agreed upon by the authors.

A first perusal of the extracted literature showed that two types of factors were found to influence the effectiveness

**Table 1.** Phases of literature conduct (numbers refer to number of articles extracted).

Database (10/5/2012)	Phase 1: innovation OR new technology development OR NPD	Phase 2: communication OR R&D OR cross-functional communication	Phase 3: knowledge management OR market orientation	Phase 4: NPD OR food innovation OR (internal)* communication	Phase 5: food and NPD	Extraction based on abstract	Adding central references	Total	Specifically/partly addressing food industry
Scopus	770,265	179,871	3708	316	—	7			
Ebsco	42,834	2079		367	—	4			
ScienceDirect	28,482	16,657	2980	*809	—	14			
ProQuest	20,080	14,817	8517	4879	112	3			
<b>Sum</b>					<b>1604</b>	<b>28</b>	<b>9</b>	<b>37</b>	<b>13/9</b>

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