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From Concept to Creation. Insights into Internal and External Idea Sources for Food Product Development

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Abstract
Designing and innovation products are essential processes for maintaining the competitiveness and long-term sustainability of food manufacturing businesses. This study explores internal and external sources of ideas that drive new foods development, highlighting the importance of aligning product strategies with consumer needs and market demands. Feedback from sales representatives, consumer engagement, and experimental research serve as key internal sources, providing valuable insights to enhance product features. External sources, including market analysis, competitor monitoring, and participation in trade exhibitions, contribute to the identification of trends and opportunities for innovation. The role of specialized resources such as libraries, databases, and technical literature in supporting strategic planning and research is also emphasized. By integrating these diverse sources with creative thinking and systematic research, companies can generate market-driven product concepts and maintain a competitive edge. The results highlight the importance of a balanced strategy for idea generation to promote effective and sustainable innovations in food product development.

Keywords: new foods, innovation, internal ideas, external ideas, consumer needs, market demands

1. Introduction

Product development and innovation are fundamental activities in the food industry, critical for ensuring profitability, survival, and company vitality (Barcellos, 2009; Earle and Earle, 2001; Dhamvithee *et al.*, 2005; Payam, 2010). The development of new food products is a complex and multifaceted process that extends beyond the creation of an ideal recipe. It integrates two primary components – product design and process design – organized into sequential stages. This process begins with defining the product strategy and culminates in the product's commercialization and market launch (Aramouni and Deschenes, 2014; Baker and Hart, 2016; Chwastyka and Kołosowski, 2014; Earle and Earle, 2001; Fang and Chyu, 2014; Kotler and Armstrong, 2010; Manfio and Lacerda, 2016). While the stages of product development are generally consistent across projects, the time and effort required at each stage can vary considerably. For extended development processes, the logical sequence of stages remains unchanged, though their descriptions may evolve. Product development is an integrated process that begins with aligning the product strategy with the broader business strategy. This process

typically includes four major stages: (i) product development strategy, (ii) product and process design, (iii) product commercialization, and (iv) product launch and post-launch evaluation. At key points between these stages, top management must assess the project's progress and decide whether to continue or revise the project. Advancing a project entails significant resource allocation, and decisions are informed by results from each stage. These results are synthesized into various reports, including the product report, feasibility report, commercial report, and final assessment report. Corresponding product outputs include the product concept (after stage i), prototype (after stage ii), commercial product (after stage iii), and company-branded product (after stage iv). Once activities, results, and decisions are clearly identified, the product development process can be strategically planned and designed to guide innovation towards achieving both specific objectives and the company's overarching business strategy (Earle and Earle, 2001). The product development process begins with idea generation, encompassing the birth, development, and maturation of a concrete idea (Bhuiyan, 2011; Earle and Earle, 2001; Komninos *et al.*, 2015; Kotler and Armstrong, 2010). Idea generation is a critical element of creativity and innovation (Amue and Adiele, 2012), with the goal of producing a variety of ideas from which the company can select the most feasible and promising options (Bhuiyan, 2011; Earle and Earle, 2001; Kotler and Armstrong, 2010). While some companies bypass this step by adapting competitors' products, many employ creative thinking techniques to generate a significant volume of ideas for new products (Aramouni and Deschenes, 2014; Komninos *et al.*, 2015). The idea generation process comprises two primary approaches: systemic thinking, which unifies diverse elements for incremental improvements, and free thinking, which explores multiple possibilities for radical innovations and complex problem-solving. Both approaches are used based on the company's product strategy. In the food industry, systemic thinking is particularly emphasized due to the constant pressure to launch new products. Generating new ideas is inherently challenging and significantly impacts the direction of product development, whether through improvement (low risk, minimal research, lower costs) or innovation (high risk, extensive research, higher costs). The stimuli for new product and ingredient ideas can be found in a variety of sources (Fuller, 2011). Numerous innovative concepts for ingredients and food products are documented in scientific literature, technical articles, and business studies. Examples include leaf protein concentrate, protein extract from exhausted bee bodies, sugar and citric acid derived from corn cobs, and wine made from whey (Ashour *et al.*, 2014; Fuller, 2011; Gawel and Kosikowski, 1978; Rathore, 2010). While these examples showcase highly unconventional ideas, many remain scientific curiosities rather than viable products. For such ideas to gain consumer acceptance and achieve commercial success, key questions must be addressed, such as: who wants these products? where are they needed? Although technically feasible, many of these ideas are conceived in isolation from real-world consumer needs. For instance, while leaf protein concentrate may hold potential as a sustainable ingredient, most consumers associate leaves with uses like compost, not as food ingredients. Such concepts commendably repurpose residual materials, offering ecological benefits by addressing waste disposal challenges. However, they often fail to align with consumer demand or behavior, highlighting the importance of grounding product ideas in actual market needs. A successful product idea should originate from the needs of its intended users. Rather than searching for a perfect idea – which does not exist – companies should focus on leveraging viable ideas to meet consumer needs in their current markets or areas of expansion (Fuller, 2011). Balancing consumer perceptions and needs, typically identified through marketing research, with the company's long- and short-term objectives, skillsets, and production capacity

is essential (Earle and Earle, 2001; Fuller, 2011). Numerous sources contribute to generating new product ideas, and when combined with robust marketing research, these sources help identify customer needs, define target markets, and develop product concepts to address these needs (Fuller, 2011). Idea generation can originate from internal sources, such as employees, sales representatives, or observations of competitive products, and external sources, including consumer feedback, market research, retailers, distributors, competitors, exhibitions, and academic or technical literature (Aramouni and Deschenes, 2014; Bhuiyan, 2011; Earle and Earle, 2001; Fuller, 2011; Kotler and Armstrong, 2010; Pride and Ferrell, 2008; Ramesh *et al.*, 2008; Komninos *et al.*, 2015).

2. Methodology

This article aims to consult a database necessary to offer significant information on different idea sources for new foods development. Data was obtained from different databases (Web of Science, Scopus), such as scientific articles, books, book chapters, and websites.

3. Results

3.1. Internal idea sources for new foods development

Product ideas that align with the needs and desires of targeted customers or consumers can arise in any food manufacturing company (Fuller, 2011; Hill and Hill, 2011). However, these ideas should be rooted in consumer needs rather than the personal preferences of company decision-makers (Fuller, 2011). One of the most significant sources of new product ideas is the interface between sales staff, sales representatives, retailers, and customers or consumers (Fuller, 2011; Komninos *et al.*, 2015). Sales representatives function as vital observers within retail environments, acting as the company's eyes and ears on the ground. They monitor store shelves to track pricing, evaluate the state and placement of competitors' products, interact with customers and consumers, and engage in discussions with store management. These interactions often reveal valuable insights into product weaknesses, such as packaging or delivery issues (Fuller, 2011). Sales staff provide the company with essential intelligence on market dynamics and serve as an early warning system for competitors' activities (Fuller, 2011; Komninos *et al.*, 2015). By listening to feedback from retailers, customers, and industrial users, sales representatives can relay important information about consumer preferences for new products, including price sensitivity and desired features (Fuller, 2011). Food manufacturing companies often conduct experimental studies to test raw materials, ingredients, manufacturing processes, product characteristics, transportation methods, storage conditions, and new equipment or technologies (Earle and Earle, 2001; Fuller, 2011). These experiments, performed on research installations or technological lines, require comprehensive documentation, cataloging, and centralized storage to ensure future accessibility. Such records hold more than historical value; they can serve as a treasure trove of product ideas for future technologists. Records of past product ideas, including rejected formulations and their associated reasons, may prove relevant and viable under current market conditions. The absence of this information represents a significant loss for research and development efforts, as well as wasted financial resources (Fuller, 2011). Each product comprises a combination of tangible and intangible features that define its utility and value. Technological attributes include raw materials, composition, structure, size, shape, processing methods, storage conditions, and product type. Consumers evaluate these products based on usability, sensory properties, nutrition, safety, and psychological or social significance. From a market perspective, factors such as market type,

sales, pricing, and advertising are assessed. Modifying these characteristics or introducing new ones can enhance a product's appeal to consumers. Comparing these attributes to those of competing products helps identify market gaps and informs the development of "me-too" products with improved positioning. Each product has a unique profile defined by a set of characteristics, some of which are more important to consumers than others. While certain features are highly desirable (benefits), others may be unfavorable. The study of product characteristics plays a vital role in developing product concepts, both within companies and in collaboration with consumers. By analyzing product morphology – ingredients, nutritional components, and psychological characteristics – companies can generate ideas for enhancing product features. Adjusting these characteristics along various scales (*e.g.*, strengthening or weakening specific attributes, combining characteristics, or introducing new ones) can lead to the creation of innovative product profiles (Earle and Earle, 2001).

3.2. External idea sources for new foods development

Exploring opportunities derived from sources outside the company balances the ideas generated within the company and may bring a wide range of ideas to develop new products. The customer/consumer may be found in various markets. Logically, the market where they are to be found is the right place to find what meets their perceived needs. All information on needs, purchasing habits, as well as any features specific to the customers/consumers, help food manufacturers to improve and refine product concepts into tangible products for a targeted purchasing segment (Fuller, 2011). The discontentment of customers/consumers, and the rage caused by an unsuccessful product may also provide valuable information, such as: a regular complaint (a hidden flaw of the product) indicates the need for the product to be improved (reformulation, new technological process); similar complaints all over the entire market show that something is going wrong in the manufacturing process or the distribution channels. In case products constantly fail to meet consumers' needs, then a complaint analysis may generate new product ideas, conceived to settle the failure and meet these needs. In developing new products, information such as: information on weekly summaries of all complaints, complaints sorted out on product, brand, and shop, may be stimulating in the process of product improvement and may result in generating new ideas. A marketing axiom says that a company that is thinking ahead knows about the activity of the competition. The latter competes to gain the customers' attention, as well as their money, as well as the consumers' preferences; any competitive activity may serve as an impulse for an accelerated program of product development, requiring new product ideas to beat the competitors. There are means to keep watch on the competition's activities, *e.g.* articles in scientific magazines revealing the company's research interests, equipment acquisitions announced, equipment sale contracts concluded, company blogs and social networks, information sites on the product, exhibition stands at fairs, etc. Each of these provide small pieces of information, which may be integrated in order to reveal the complete image of the competitors' direction. Competitive products on store shelves are the source of many ideas for new products. The inspection of competitive products, sensorial analysis and composition analysis provide data which allow: the comparison of ingredients to provide an estimate of ingredient costs, the margin of competitors' costs, and the ingredient; comparison of quality characteristics (taste and flavor, texture, color, etc.) of the competition's products, determining the most attractive characteristics for customers; assessment of the package and label to measure what the customers see on a packaged product (Fuller, 2011). These comparisons help the company maintain a strong awareness of

competitive products (Jack, 2009; Fuller, 2011). The information obtained by comparisons and contrasts provide new product ideas, and by free associations of ideas generate new product concepts. The combination of a product attribute from the competition with the characteristics of another market leader, plus something from a third product may generate a new product concept (Fuller, 2011). When customers are geographically spread out, and the market is differentiated from a place to another; conferences, exhibitions, fairs and seminars are a good place to obtain new product ideas, for products that are completely new or just product supplements, or modernizing already existing products (Komninos *et al*., 2015). Such events showcase creativity on a grand scale, revealing cutting-edge innovation techniques, emerging developments, and advanced technologies (Fuller, 2011; Komninos *et al*., 2015). Participating in national and international commercial fairs of foods and equipments is an essential activity for the members of the development team. The participants have access to vast networks of new food products and ingredients, as well as the most recent evolutions in processing equipments from various countries. The awareness of this variability and availability of food products on an international level, and creative thinking may stimulate new product ideas. Public libraries have sections on food products, a large collection of cookbooks, professionally trained librarians, and access to databases with specialized information sources for companies that do not possess their own facilities. Without access to information, companies would be helpless. The information on markets, food legislation, commercial statistics, financial analysis of companies, consumerism and consumption tendencies are instruments necessary in the strategic planning of food product development projects. Equally valuable is the access to technical information on equipments in food industry. The access to databases and the experts that support the access to this structured and organized information decrease the amount of time spent analyzing specialized literature, providing scientists the technical support they need. Specialized libraries (business libraries, reference libraries, technical libraries – engineering, patents) provide information and statistics on a wide range of topics available to developers. Patent literature is an interesting source of data for investigations on what has already been patented and the pending patents (they reveal directions in research and development that the competition is following). Technical libraries are equally profitable in providing ideas for new products or new developments in food science and technology, food product processing, nutrition and preservation. Business libraries are surprisingly fertile in point of information on new ingredients to inspire ideas for product development (Fuller, 2011).

4. Conclusions

The development of new food products is an essential yet complex endeavor in the food industry, integrating product design, process design, and strategic alignment with business goals. This process requires innovation and creativity to address consumer needs while ensuring the commercial viability of new products. Internal idea sources (input from sales representatives, feedback from consumers, and experimental studies) provide critical insights into market demands and enhance the product development process. External idea sources (customer feedback, competitive analysis, and participation in exhibitions and fairs) facilitate the identification of trends, consumer needs, and technological advancements. Gaining competitive intelligence by analyzing competitors' products, patents, and public activities is a crucial strategy for driving innovation and generating new product ideas. Furthermore, specialized information sources (libraries, databases, and technical literature) offer invaluable support for identifying market opportunities and advancing research and development. Access

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to these resources enables companies to stay informed about global trends, regulatory frameworks, and scientific discoveries, which are crucial for strategic planning and innovation. The integration of internal and external idea sources, combined with systematic market research and creative thinking, forms the foundation for successful product development. Through the integration of diverse idea sources, creative thinking, and structured research, companies can develop market-responsive product concepts and retain their competitive advantage.

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