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INTEGRATING R&D MANAGEMENT PRACTICES IN THE DEVELOPMENT OF NOVEL CONFECTIONERY PRODUCTS

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Abstract: The confectionery industry faces increasing pressure to innovate while addressing consumer demands for novel textures, flavors, and sustainable ingredients. This study explores the integration of structured Research and Development management practices in the systematic design of innovative cookie-category pastries with minimal processing, free from additives and preservatives, while maximizing nutritional value. This approach ensures compliance with dietary standards while aligning with consumer preferences for clean-label products. The product development strategy employed in this study encompasses: (1) new product conceptualization, (2) product design and development, (3) identification of key competitors, (4) determination of market pricing, and (5) formulation of marketing and commercialization strategies for the newly developed products. The performed SWOT analysis identified organizational strengths in innovative product development with clean-label and high-quality attributes, while highlighting reduced product shelf-life compared to industry benchmarks as the primary weakness stemming from strict adherence to natural ingredient formulations. Three new cookie varieties were selected for development based on market research findings: plain fennel biscuits, fennel-sesame biscuits, and fennel-cayenne pepper biscuits. A framework is proposed to optimize resource allocation across four innovation domains: ingredient substitution, processing technologies, nutritional enhancement, and sensory experience. This research provides actionable insights for SMEs and large manufacturers navigating the challenges of sustainable product development in the global sweets market.

• Introduction

The development process is a very important factor in product development. It must be carried out on the basis of a well-established strategy in order to avoid undesirable results that could damage the product. Obtaining high quality products is the main goal of the organization and innovation is the surest way to develop the company. Innovation underpins economic growth and can be a source of sustainable competitive advantage and is fundamental for organizations that want to stay focused in the marketplace. Product development is a series of steps that include conceptualization, design, development and marketing of newly created or rebranded goods or services. Product development encompasses the entire journey of a product from the initial idea to its market launch. The five elements of product development are as follows: identification of design criteria; idea analysis, which requires a more careful evaluation of the product concept; concept generation involves turning an identified product opportunity into a tangible concept; prototyping, which includes creating a rapid prototype; product development requires ensuring that the concept is viable and has been determined to make business sense and have business value.

• Material and method

The research methodology was based on the identification of bibliographical data from the literature but also on a study conducted within a bakery company in Hunedoara County, which prioritizes the process of product innovation, and which considers innovation as an opportunity to keep the organization as stable as possible in the market sector in which it operates.

• Results and discussions

Case study - Innovation strategy for novel products in the cookies category

The main objective of the organization in terms of product innovation strategy is to create bakery products as natural as possible, without additives or preservatives, so that the range of products meets as many nutritional requirements as possible, which makes them meet the requirements and be as much as possible to the liking of consumers.

Specific objectives

1. Product development and expansion of the company's assortment by implementing natural, superior quality products.
2. Increase turnover and develop the customer portfolio by selling the products.

Company development strategy

In order to determine both short term and long-term needs, the organization frequently conducts market studies, which determine similar products of other manufacturers that are on the market or will be launched in the near future.

Results of the analysis of the cookie market in supermarkets

Product	Weight [kg]	Package	Price/PU		Price/kg		Maximum price (lei/kg)		Medium price (lei/kg)		Minimum price (lei/kg)	
			with TVA	without TVA	with TVA	without TVA	with TVA	without TVA	with TVA	without TVA	with TVA	without TVA
Walnut cookies	1,8	Carton box	66	55,46	36,67	30,81						
Butter cookies	0,350	Carton box	16	13,44	56	47,05						
Cocoa cookies	1,0	Carton box	38	31,93	38	31,93	244	205,04	56	47,05	36,7	30,81
Coconut cookies	0,135	Carton box	33	27,73	244	205,0						
Fruit cookies	0,800	Carton box	45	37,81	56	47,05						

SWOT ANALYSIS

Strengths	Weaknesses
<ul style="list-style-type: none">- natural ingredients- high-performance equipment- products made from high-quality raw materials- innovative new products	<ul style="list-style-type: none">- shorter shelf life than other products due to natural ingredients- need for larger quantities of ingredients
Opportunities	Threats
<ul style="list-style-type: none">- available workforce- growing consumer preference for natural products- modern consumer expectations for innovative product launches	<ul style="list-style-type: none">- strong competition- higher prices due to quality ingredients- possible consumer reluctance to a different product

MARKETING PLAN

Due to the fact that consumer preferences fluctuate continuously, it is a real challenge for the organization to develop new products.

The marketing strategy implemented for the promotion of the range of appetizer cookies with fennel targets the following sectors of the market: product, price, shelf placement, promotions.

The company's marketing strategy emphasizes:

- Customer: offering safe, natural products for purchase.
- Target: fluctuating product prices.
- Solution: volume, revenue and margin were calculated by statistical extrapolation.

Conclusions

Market research showed that there were no fennel cookies on the market, and the case study company aimed to develop 3 assortments: plain fennel cookies, fennel and sesame cookies, and fennel and cayenne pepper cookies. The SWOT analysis revealed that the strengths of the company are the development of innovative products from high quality raw materials, and the weakness is the lower shelf life compared to other products due to natural ingredients. Main manufacturers/competitors in the cookie market were identified. The selling price/per 200g box of fennel cookies was calculated.