

No easy task: successful R&D in saturated markets

Innovation is the buzz word within the food industry. It's all about creating the newest and most outstanding certain "something" that triggers the buying incentive among shoppers in a very crowded market. Literally on everyone's lips, the term innovation seems to be greatly overused – but what does it actually mean? A major breakthrough innovation came in the 1950s with the introduction of frozen foods, which revolutionized food preparation and consumer habits. In our modern and highly developed world, however, those kinds of developments have become something of a rarity. Today's market impetus mainly comes from transferring current trends into products that respond to new lifestyle habits and consumer preferences. In a bid to capture the spirit of the moment, countless numbers of new launches flood the market every year. But with 70 per cent of these launches destined to flop within 12 months, the crucial question for manufacturers is: How can I make sure that my product is among the 30 per cent that succeed?

Developing successful products is all about creating outstanding concepts, sourcing high quality ingredients and having the capacity and expertise required to transfer concepts into appealing and safe products. This can sometimes be a tall order. But there are several approaches that can assist manufacturers in developing promising products by accelerating, improving or supporting R&D processes.

The classic approach: collaboration with ingredient suppliers

Over the past few decades, the role of suppliers has changed significantly. Nowadays, suppliers are expected to provide more than just ingredients of high and standardized quality throughout the year. Increasingly, they are also required to contribute their in-depth knowledge of the technical properties of the ingredients, as well as the overall effect they will have when combined with others in a formulation. Expertise in regulatory and marketing issues is also high on the list of client expectations. Thus, suppliers are becoming more and more involved in the whole R&D process, and are increasingly opening their doors to customers – for example, to attend trial runs at pilot plants. Combining manufacturer and supplier expertise results in a more efficient R&D process. According to ingredient supplier GoodMills Innovation GmbH (formerly Kampffmeyer Food Innovation GmbH), its Innovation Center plays a key role in ensuring efficient and successful product

development. To facilitate the transfer of ideas into practice, the GoodMills Innovation Center is furnished with state-of-the-art pilot plants, equipment for the refinement of milled grain products, a professional kitchen and up-to-date baking technology for application-related trials, as well as a laboratory where products can be analysed. GoodMills Innovation is also committed to producing the most innovative ingredients possible, as demonstrated by its ongoing participation in health research projects. Dr. Carola Funk, Head of R&D at GoodMills Innovation GmbH, explains: "Participating in the latest scientific studies is a vital pillar of our R&D activities. It results in really innovative ingredients that lead to profitable positioning possibilities for our customers. The exciting challenge for us is to turn the scientific conclusions into real products that meet the practical demands of our customers in terms of processing parameters and technical properties." Recently, GoodMills Innovation took part in two EU-funded initiatives, the HealthGrain and HealthBread projects. Aimed at improving the nutritional profile of staple foods, these two projects have enabled grain ingredients with outstanding nutritional properties to come to life.

Tackling legislative hurdles

When it comes to really new product ideas, developers are often faced with major issues when they encounter legislative hurdles. "Line extensions of existing products or new recipe

developments that feature traditional food ingredients and are processed using established technologies are often promoted as innovations, but in my opinion, they aren't really," says Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at BENE0, one of the leading manufacturers of functional ingredients. "Indeed, nowadays it is difficult to develop something truly innovative. For me, this would be, for example, a new ingredient that provides nutritional or physiological benefits while ensuring consumer safety. However, this approach involves complying with complex food legislation and may even include the process of health claim approval – all of which can mean that time to market is lengthy and unpredictable. Alternatively, it is possible to create what we would consider to be innovative concepts by taking an existing or even traditional food product and re-inventing it from a nutritional point of view, adapting it to today's needs. After all, it's the ingredients that make the difference when it comes to the nutritional perspective."

The BENE0-Institute has the experience and the knowledge required to tackle all of the challenges involved in developing food and beverage innovations. It brings together BENE0's expertise in Nutrition Science, Nutrition Communication and Regulatory Affairs. In doing so, it acts as an advisory body for customers and partners, from ingredients approval

and physiological effects to nutritional composition and labelling. The Institute is committed to scientific research that proves and supports the health benefits of BENE0's ingredients. Its research data is crucial when it comes to claims evaluation and approval by authorities. For instance, several scientific studies, including proprietary data, demonstrate the link between the prebiotic chicory root fibre oligofructose and improved blood glucose response, as well as the beneficial effect of inulin on bowel regularity. Based on these findings, BENE0 submitted dossiers for health claims under Article 13.5 to EFSA, and these were evaluated positively in 2014 and 2015 respectively. EFSA's positive evaluations now pave the way for health claims approval by the EU Commission, the Member States and the European Parliament. "The health claims process is extremely time-consuming and highly bureaucratic. And a positive evaluation is only the first step – there are several more approval hoops to be jumped through," says Sentko. "However, this type of investment is necessary when dealing with the health and nutrition-related challenges of today and tomorrow. As a company, we are willing to invest enormous amounts in R&D and to fight our way through the regulatory jungle as we believe it results in innovative solutions, concepts and food and drink applications that will benefit the industry and consumers alike."

Independent institutes

When it comes to external associations that support product development, independent institutes are an attractive option – especially for small and medium-sized food manufacturers, who can profit from the comprehensive services on offer and can request project-specific assistance. "We support our members along the product development process in several ways," explains Michael Benner, Head of KIN GmbH at the KIN Food Institute, which is headquartered in Neumuenster, Germany. The KIN's services encompass consultancy in all aspects of food safety – from ingredients and processing parameters to finding the perfect packaging. The institute also assists its members in creating HACCP concepts and process validation, and it provides a vital consultancy service in regulatory issues.

According to Benner, the increasing power of food discounters means there is continuous demand for a wide range of private-label products. In this sector, however, it is not "real" innovation that is important. Instead, the key is being able to improve existing formulations and packaging as well as extending product lines and introducing limited editions. "Having to consistently alter a product portfolio has implications in terms of both time and personnel capacity, which many small and medium-sized companies cannot afford," says Benner. "We recognize that professional sensory trials in particular are beyond the reach of most SME companies." With its proprietary panel of product-related skilled testers, the KIN Food Institute is able to compile taste profiles that match the desired application and target group. Offering comprehensive food expertise and services, institutes like the KIN can offer much-needed assistance during product development.

Serving the needs of small and mid-sized companies

Another vital aspect of the product development process is on-time delivery of the right ingredients in the right quantities. But small and mid-sized food manufacturers often lose out here because the sales teams



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of many leading ingredient producers are very much focused on multinational corporations while they are largely left behind. This was something that German distributor Innotaste set out to address when it was founded 10 years ago. The founders themselves had previously worked for a leading international supplier of flavour and aroma chemicals and were aware of the disadvantages faced by SME companies. Innotaste has its own warehousing facilities, which enables it to provide its customers with smaller product volumes within a shorter period of time than is possible with other distributors. But of course it's not just about rapid delivery. By concentrating on a few selected manufacturers of high-quality ingredients, Innotaste has built up vast knowledge of all of the ingredients it distributes. It is therefore able to assist with formulation development and application trials in its proprietary laboratory, and covers everything from food legislation to quality assurance along the way. Andreas Schockhoven, Co-founder and Manager of Innotaste, explains: "This results in a real win-win situation. Ingredients suppliers can transfer a lot of the hard work to us, while food manufacturers can rely on receiving their ingredients rapidly in the quantities they need, and they can profit from our comprehensive all-round service too."

Ingredients procurement: online database for fast access

With product life cycles being very short these days and with consumer demands being so diverse, rapid conversion from initial idea into market-ripe product is more crucial than ever before. Keeping up-to-date with new ingredients as well as expanding the supplier network is an ongoing task for product developers. Conventional methods such as visiting trade shows and monitoring specialist media are crucial but aren't enough for manufacturers to stay on top of everything that's new. Jill Frank, Food Champion at UL (Underwriters Laboratories), says: "My discussions with R&D formulators from different companies revealed again and again that researching ingredients is still a very time consuming process – and it's incredibly frustrating because it takes valuable time

away from product development." These discussions proved to be the starting point for UL's online database, Prospector.

Having been a world leader in product safety for more than 100 years, UL has in-depth knowledge of the food and drinks market. In spring 2014, the company launched Prospector, a search engine that specializes in the needs of food and beverage manufacturers. As such, it contains technical information on more than 70,000 food and beverage ingredients from thousands of suppliers. Finding the right ingredients in the database is extremely simple: Running a search, for example for vanilla flavour, will bring up a list of all possible suppliers of vanilla flavour – with guaranteed transparency and comparability. The key to Prospector's unparalleled service lies in its comprehensive source information: The ingredients are backed up by technical datasheets, safety information, certification details and starter formulations. Additionally, there are links to the relevant personnel at each supplier company so that manufacturers can make direct contact for sample enquiries and any other queries. Once they have registered, the database is free for manufacturers to use. "After the first few months of running Prospector, the feedback we have received has shown that we have filled a gap within the industry," says Frank. "Being able to make contact with suppliers and source ingredients information quickly and easily from one source has proven to be very valuable for manufacturers as it speeds up their R&D processes significantly."

Smart IT solutions

PLM (Product Life Cycle Management) systems are already a crucial and well-established part of the engineering industry. Since food and beverage manufacturers have different product development and regulatory requirements, software provider Selerant, which runs offices all over the world, has developed specific solutions. Broadly speaking, PLM systems help to manage data and streamline R&D processes. For example, Selerant's

PLM system DevEX stores all product details, such as formulas, raw materials, specifications, labels, etc, in a central repository to ensure there is only one single version of the truth across the product development lifecycle. The product developer can then leverage this existing knowledge for reduced costs, better team collaboration and faster introduction to market. With its integrated recipe formulation and compliance modules, DevEX allows companies to define their own product requirements and regulatory guidelines to analyze formulations and recipes. The overall result is a speedy process and fewer costly recalls of non-compliant products. "A major reason for inefficient R&D is that information is not available every time to everybody," says Julia Wiedemann, Business Development Manager at Selerant. "This is especially true if staff work in different subsidiaries or even on different continents and each facility works with its own documents and programmes." PLM systems provide a standardized and up-to-date source of information and they enable companies to make their joint knowledge available to everyone – that's the most important starting point for process improvements and, consequently, for cost savings."

Summary

PLM systems and online database solutions in particular are relatively new approaches that the food industry can make use of to simplify and accelerate R&D processes significantly. Alongside these new solutions, well-established partners such as suppliers, institutes and distributors know that they have to continuously adapt their services and solutions to fit manufacturer and – ultimately – consumer expectations. It is likely that there will never be just one solution that is 100 per cent right for everyone. But with the various solution-focused approaches that are now available, manufacturers of all sizes can select those that are the best fit for their individual needs. There is certainly a whole lot more on offer today than there was back in the days when one bright spark had the idea of freezing food for the masses. ▣