MANAGING NEW FOOD
PRODUCT DEVELOPMENT

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This project was supported by the EU 4th framework programme

ISBN 1 84170 317 6
October 2002

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The future success of the Irish food industry depends on the ability of companies to develop new skills in a rapidly changing market environment. One such skill is the management of new product development. This report illustrates the impact that training in the product development process had on a range of small to medium enterprises. Training was delivered as a series of interactive workshops covering the key stages of the new product development process. Each company also received up to 7 days consultancy support to facilitate implementation of the learning.

Eight of the nine participating companies implemented a structured, market focused new product development (NPD) process. Enhanced performance was attributed to the newly implemented NPD process. The number of new products developed and/or launched, uptake of NPD tools/skills and any positive changes in NPD budget were among the performance indicators used. Some of the key benefits of implementing the NPD process included:

- increased profitability.
- successful new product launches.
- more new ideas and new products.
- improved communications between departments.
- introduction of sensory analysis, consumer testing and brainstorming.
- learning how to balance NPD with existing activities.
- recovery of a lost client.
- improved planning and focus.
- greater understanding of the NPD process and its complexity.
- shorter cycle times.
INTRODUCTION

Developing new products presents an organisational challenge which is exacerbated by changing consumer lifestyles, consumer concerns, globalisation and the influence of the retailer. The future success of the Irish food industry depends on the ability of companies to develop and apply new skills for this new marketplace. One such skill is the management of innovation and the new product development (NPD) process. The NPD process, tailored in this project to suit the Irish food industry, is a road map with measurable milestones which companies can use to drive new product projects to market quickly and successfully. The road map outlines the sequence and timing of steps that must be carried out to move a project forward. As a project moves through the process, a series of screens or hurdles are encountered ensuring that only the highest-potential new products move to the next stage. Introducing companies to this management technique can be achieved through training and/or consultancy programmes such as the one described in this report.

The food product development training programme was originally developed by T.L. Dempster (Management Services) Ltd. (TLD) in conjunction with Scottish Enterprise Grampian (SEG), the local enterprise company in Scotland’s leading region for food production. The aim of the training programme was to enhance the capability of participating small and medium sized enterprises (SMEs) in the development of new products. The training programme was piloted with Scottish SMEs and approved by the European Commission for delivery to three other regions within the EU including Ireland, Spain and Italy.

A MODEL FOR NEW PRODUCT DEVELOPMENT

The workshop materials and case studies supplied by the co-ordinating partner (TLD) were adapted to suit local market conditions and delivered as a series of interactive workshops covering the key stages in the NPD process (Figure 1).
Figure 1. The National Food Centre Model for new product development in the food sector.
The objectives of the training programme in Ireland were to:
1. increase the level of value-added food products,
2. encourage SMEs to adopt a proactive market-led approach to NPD,
3. promote the adoption of current best practice in NPD,
4. improve the individual skills and interdisciplinary relationships within SMEs by focusing on cross-functional integration between marketing, technology and production activities,
5. establish a trans-regional development network in support of SMEs carrying out NPD programs,
6. disseminate transferable aspects.

TRAINING PROGRAMME DELIVERY

The training programme was delivered as a series of interactive workshops covering the key stages of product development. On completing the workshops, each company received up to 7 days consultancy support to facilitate the implementation of the learning. Five companies chose in-company delivery of the training programme which was tailor-made to suit their specific company's needs. Four companies attended the open training programme. Companies were restricted to a maximum of 4 participants on the open training courses and a maximum of 12 staff on the in-company option. In total, the training programme was delivered to 9 companies from 1999 to 2001. The participant profile is presented in Table 1.
### Table 1. Profile of the nine companies that participated in the new product development training programme.

<table>
<thead>
<tr>
<th>Company</th>
<th>Nature of business</th>
<th>Employee number</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drinks company</td>
<td>250</td>
<td>Product group manager, Technical director, Product development manager, Technologist</td>
<td></td>
</tr>
<tr>
<td>2. Breakfast cereal manufacturer</td>
<td>30</td>
<td>Chairman, Director, Financial director, Marketing director, Production manager, Brand manager, QA/R&amp;D manager</td>
<td></td>
</tr>
<tr>
<td>3. Bakery Ingredients</td>
<td>100</td>
<td>Technical director, Sales &amp; marketing director, Product development manager, Bakery technologist, QC manager, Bakery services specialist, Ingredient specialist, Marketing manager</td>
<td></td>
</tr>
<tr>
<td>4. Smoked salmon and fish</td>
<td>30</td>
<td>Private consultant, Owner/managing director, QA manager, Sales/marketing rep, Production supervisor/manager</td>
<td></td>
</tr>
<tr>
<td>5. Confectionery</td>
<td>250</td>
<td>Business development manager, Purchasing manager, QA manager, Brand/marketing managers, NPD manager, Management accountant, NPD technologist, Operations director</td>
<td></td>
</tr>
<tr>
<td>6. Preserves and canned products</td>
<td>250</td>
<td>Business excellence manager, Two brand managers, Management accountant</td>
<td></td>
</tr>
<tr>
<td>7. Confectionery</td>
<td>25-50</td>
<td>Manager, Production supervisor, NPD manager, Sales representative, QC technician</td>
<td></td>
</tr>
<tr>
<td>8. Processed pork products</td>
<td>40</td>
<td>QA manager, Sales manager, Sales representative</td>
<td></td>
</tr>
<tr>
<td>9. Chicken and turkey products</td>
<td>50-60</td>
<td>Director, QA/technical manager</td>
<td></td>
</tr>
</tbody>
</table>
BENEFITS/IMPACT OF THE TRAINING PROGRAMME

Company One

Company One manufactures soft drinks. Before the training programme, the company had a dedicated product development manager who shared responsibility with individual brand managers for NPD projects. No formal NPD procedures were in place and an external consultant facilitated idea generation. The company recognised the importance of managing NPD and had identified specific areas where assistance was required, i.e. they wanted to create an efficient, logical and user-friendly NPD system, to learn from past mistakes and to avoid making the same mistakes again in the future.

The company availed of the in-company programme after which participants were asked to complete an action plan detailing the areas requiring consultancy. The main requirement was to document procedures. A previously unsuccessful project was analysed and the information was used as a starting point on which to build a company-specific NPD process. At this time, issues regarding funding for R&D and allocation of financial resources were discussed. The matter was then brought before the Board of Directors. A four-member implementation team was chosen. In addition, key staff members were identified as potential project team members. Procedures, screening criteria and scoring models were developed and an NPD process manual and flow chart were finalized. The new management system for NPD was presented to senior management and a member of the Board of Directors for approval.

The NPD process which was implemented had 6 phases:

1. Idea generation
2. Project initiation
3. Feasibility
4. Initial development
5. Further development
6. Launch
Company Two

Company Two makes breakfast cereal. Prior to the training programme, the company used a private consultant to identify new ideas and opportunities on their behalf. No formal management systems for NPD were in place.

This company used their consultancy to document procedures and to carry out taste panels and preference tests on several new products. An NPD team was established and a seven-phase NPD process was implemented:

1. Idea generation
2. Feasibility
3. Concept & product development
4. Business case
5. Development for market
6. Launch
7. Project performance

The NPD process was incorporated into the operating practices of the company and was used to launch two new products and a new variety is to be launched soon. Another product is in the development phase.

Company Three

Company Three is in the bakery/ingredients sector and has at least three sites in different regions around the country. In total, five staff are dedicated to R&D. Formal NPD procedures were in place before attending the training programme but these were different in each site. In addition, cross-functional teams were not in use. The company wanted to receive formal NPD training, adopt a team approach for NPD and set up user-friendly NPD procedures which could be modified to suit different factory sites and different products/processes. After the formal training, the company identified some key areas where they needed assistance:

- team building
- sensory analysis
- review meetings: structure/format/agenda
Procedures were documented and a five-phase NPD process that is transferable between the company’s different sites was designed and put in place:

1. Idea generation
2. Feasibility
3. Business case
4. Development
5. Launch & monitor

When the NPD process was complete, approval from the senior management team was received following a presentation by the R&D manager. Information was then presented to staff who had attended some of, but not the entire, training programme and to staff who were new to the concept of NPD management.

Company Four

This company produces smoked salmon and other fish. Before the training programme they had no dedicated NPD staff. A private consultant, employed 1-2 days per week, was responsible for QA/QC and had recently been given responsibility for NPD. No formal management systems for NPD were in place. Despite their lack of facilities and resources, the company was eager to learn how to develop and launch new products. The major driving factor was pressure from a major retailer to produce more innovative, value-added products. Following the training programme, the company decided not to put a formal NPD system in place due to their small size and the nature of their business. The consultancy visits were used to improve their innovative capacity in other ways as shown below:

1. Screening and training a taste panel (2 days)
2. Marketing advice and consultancy (1 day)
3. Packaging consultancy (1 day)
Company Five

Company Five produces a variety of confectionery products. At the time of the training programme, a dedicated NPD manager with specific responsibility for co-ordinating future NPD projects had recently been appointed. No formal management systems for NPD were in place and the company was keen to develop and implement an NPD system. A previous project which had not been successful at launch was reviewed by the core team. This was used as a starting point on which to build a company specific NPD process. Procedures, process flow charts, screening criteria and activities checklists were developed and finalised. The process has 6 phases and has been in use since 2001:

1. Idea generation
2. Feasibility
3. The business case
4. Development
5. Launch
6. Project performance

Using the NPD process, the company has launched six new products, one of which has been on the market for 11 months.

Company Six

This company produces preserves and canned products. At the time of the training programme, they had a group of 5 staff co-ordinating NPD activities. However, none of these were totally dedicated to NPD and formal procedures were not in place. The NPD group wanted to adopt a more structured approach to NPD and have a better ability to screen and reject poor ideas. In this way, they hoped to avoid wasting valuable resources on unsuitable projects. On completing the training programme, the participants presented the new approach to NPD to the Board of Directors for approval. The response was favourable. Product development activities are now centered on range extensions and on two new, more complex areas. The seven phases in their NPD process are:
Company Seven is in the confectionery business. Six staff were involved in NPD but no formal NPD procedures were in place. The company hoped to gain a working knowledge of how to set up and implement all aspects of new product development. As a result of the training programme, an NPD team has been set up to implement and manage the 6-phase NPD process:

1. Ideas stage
2. Kitchen scale
3. Mini production runs
4. First production runs
5. Launch
6. Monitor

Company Eight manufactures processed pork products for the catering and food service sector. They had no formal NPD procedures in place prior to the training programme and their main objective was to receive formal training on how to develop an NPD process which could be effectively implemented in the company. They also wished to upgrade their marketing capabilities and begin manufacturing for the retail sector.

This company received assistance with labeling, promotional activities, consumer tests, marketing and documentation of the NPD process. The first consultancy visit was a presentation to senior management, including the owners of the company, to explain the benefits of a formalised NPD process.
Following the presentation, the Board of Directors approved of further consultancy to assist in documenting procedures. The company identified and put in place a team of seven which is responsible for the NPD process. Three decision-makers who are responsible for approving the project at each review meeting and for authorising finance were selected. The company now have a User’s Manual and a Quick Guide in place which fully describe NPD procedures for both the retail and catering sectors. Brainstorming was introduced to the company and has been formally recognised as an idea source. This is an entirely new approach for the company. It is envisaged that the NPD process will be used by additional staff in a new factory which is to be dedicated to new products. The 4 phases of their NPD process are:
1. Idea generation & feasibility
2. Trial run
3. Pre-production
4. Full scale production & monitoring

Company Nine

Company Nine produces chicken and turkey products. Two staff were involved in NPD and formal procedures were in place prior to the training programme. However, the company wished to develop a more systematic approach to NPD and wanted to include marketing and production in their NPD activities. As a result of the programme, the company put a 6-phase NPD process in place. An NPD team has been set up and two decision-makers who will authorise finance and formally approve projects at review meetings have been identified. The six phases in their process are:
1. Opportunity identification
2. Feasibility investigation
3. Initial development
4. Further development
5. Pre-launch and launch
6. Monitoring
Summary of the main benefits of introducing the formal NPD process in companies

The training programme encouraged companies to adopt best practice in innovation/R&D management. It provided companies with the skills necessary to generate new ideas and introduced them to a formal NPD process which allowed them to capture and convert those ideas into new products and bring them successfully to the market. Enhanced performance in participating companies was attributed to the newly implemented NPD process and some of the key benefits included: increased profitability, more successful new product launches, more new ideas and new products, increased efficiency of company R&D spend and more efficient product development.

PERFORMANCE INDICATORS

Measures to monitor the results of the project in each member state, i.e. Spain, Italy, Scotland and Ireland were undertaken on completing the workshops and consultancy. Two participating Irish SMEs (Company six and Company eight) were selected and audited by the Spanish partner. Summaries of these confidential audit reports are provided below. Five key areas were addressed during the company visits:

- product ideas
- new products developed, in development or launched
- introduction of NPD tools and/or skills into the operating practices of the company
- changes in NPD budgets
- networking interests

Performance of selected Irish companies

Company eight manufactures sausages, bacon, ham, pudding and other pork products.

Product ideas generated: The usual source of ideas is the owner/manager and three other members of the management team. As a result of the training
programme, brainstorming was adopted as an idea generation technique. The screening/selection system is simple and several ideas were considered for further development following brainstorming.

New products developed/launched: The marketing module on the training programme prompted a change in the company’s strategy regarding product mix. As a result, profitability of product lines was examined and the efforts of the sales force were re-focused. This resulted in higher margins and increased sales. During the training programme, one of the company’s main products was delisted by a major retailer due to decreasing sales. The product had to be re-designed within a short time-frame. A new formulation was developed and the company was assisted with sensory evaluation and market tests. The modified product was acceptable in consumer tests. As a result, the retailer re-listed the product. The owner/manager believes that more value-added products and less labour-intensive products will need to be developed if they are to remain viable in the coming years.

Utilisation of skills and technology: The most valuable skill gained from the training programme was finding out “what not to do”. In addition, the company sees value in the step-by-step structured NPD system. They have adopted brainstorming, sensory evaluation and consumer tests for the first time. Also, the financial advice was seen as valuable. Due to the lack of internal resources, market research and testing will be out-sourced.

Expenditure on research & development: An R&D budget will be set on a project by project basis.

Networking: The company is regionally focused and is not interested in international networking.

General/overall comments: The owner/manager summarised the benefits of the workshops and consultancy:
- profitability increased due to the change in product mix
- a lost client was recovered
- a new structured NPD system is in place and ready for use
- “...it was definitely worth the money”

Company six produces, among other products, marmalades, jams and jellies. It also distributes branded breakfast products.
Product ideas generated: Before going through the training programme, idea generation came from the company’s marketing department (“a client wants this product”). This was a reactive approach that the company wants to overcome. The training programme introduced new possibilities for idea generation and ideas management. The brainstorming sessions generated between 8 and 10 short-listed ideas. Further selection produced three ideas for the development stage. The team was especially satisfied with the brainstorming sessions.

New products developed/launched: Three projects were initiated in the company as a direct result of the brainstorming sessions during the training programme. The target market for the first is the USA. The success of these new products will result in a strong consolidation of Company six in this market. The second project requires both recipe development and new packaging. The present package is too small and the purchase of machinery is needed. The “cash & carry” market is the target and this is a new market for the company. The third project, a range of organic products, is based on the new social needs of environmental concern and healthy nutrition.

Utilisation of skills and technology: The company launched new products in previous years but it was not done through a disciplined, structured framework, which is recognised as the main benefit of the workshops and consultancy offered by The National Food Centre. The training programme resulted in improved communications between the different departments in the company.

Expenditure on research and development: The R&D budget will be set on a project by project basis. This appears to be the best way to manage NPD because setting a fixed R&D budget could cause potential conflict between the departments involved.

Networking: The company is interested in benchmarking, licensing new products, or other commercial activities within the same sector and with non-competitor companies throughout Europe.

General/overall comments: The workshops and consultancy showed “a realistic way of seeing the depth of NPD.” The team also learned to balance NPD with existing activities.
Show Case Symposium

One of the aims of the project was to help networking between partners throughout Europe. To achieve this, The National Food Centre organised and hosted the Show Case Symposium in February 2001. Participating companies from Scotland, Ireland, Spain and Italy were invited. Two Irish companies hosted a “learning visit” for the overseas visitors to demonstrate best practice. Visits to several retail outlets allowed overseas companies to assess the potential of the Irish market and identify gaps and opportunities. The highlight of the symposium was a presentation from the Director of Development in a major Irish food manufacturing company on their experience of developing and using a market-focused NPD process.

CONCLUSIONS

- The National Food Centre model for new product development in the food sector can be used by manufacturers supplying retail, food-service/catering and business to business sectors.
- A multi-functional team approach can be used in large companies and SMEs.
- Smaller SMEs (less than 30 employees) and micro-companies (less than 10 employees) can benefit from the introduction of a simpler system based on checklists and screening criteria.
- Some of the key changes in operating practices implemented as a result of the training programme include: establishing NPD teams, holding regular NPD meetings, using brainstorming to generate new ideas and implementing a formal NPD process.
- Major benefits observed due to such changes include successful new product launches and shorter cycle times.
At present, there are many elements in place which can help build a culture for innovation both at company level and at national level. However, many of these elements exist in isolation and it is recommended that a National Innovation Structure (Figure 2) should be put in place which integrates both company and state innovation efforts. The model presented shows the context in which Irish food companies operate and identifies some of the enablers needed to produce an environment in which sustainable competitive advantage is a real possibility. At company level, performance indicators include business growth, increased competitiveness and achieving business goals. At national level, performance indicators include building a climate and culture for innovation within the Irish food industry.

Recommendations to industry

To achieve sustainable competitive advantage Irish food companies need to (1) manage the innovation and NPD process effectively within their companies, (2) transfer information efficiently within the company, (3) identify ways of transferring knowledge, including scientific and technological advances, into the company from external sources and (4) increase utilisation of R&D funding from state agencies, EU and other sources.

Managing the innovation and NPD process effectively

It is recommended that companies adopt best practice in R&D/innovation management, i.e. they should adopt a structured, market-focused approach to NPD such as the one described in this report. Smaller companies can benefit from the introduction of a simpler system based on checklists and screening criteria.

In both large and small companies, it is important to ensure optimal information flow between relevant staff. Regardless of company size, locating the NPD function correctly allows the flow of strategic information to NPD. Traditionally, NPD was located in engineering/production but this is gradually changing and, now, NPD managers are not only moving from engineering to marketing but...
Figure 2. A National Innovation Structure showing company and state enablers necessary for sustainable competitive advantage.
they are also reporting to higher level executives. In companies using NPD teams, it is important that internal knowledge is transferred effectively so that the team can use that information to create a viable product and bring that product to the market. Successful information integration can be achieved by team learning (learning by doing) or cross-team learning (capturing lessons learnt previously and applying to new projects) depending on the type of new product being developed. This requires team members to share information and to challenge one another’s perspectives. Effectively communicating in this way can benefit NPD by improving new product quality.

**Technology sourcing strategies**

Both large and small companies should develop technology sourcing strategies to access scientific and technological information from external sources such as 3rd level research institutes. Gaining knowledge from outside the company (market learning) can be achieved for example, through direct contact with other companies and research institutions or attending relevant conferences.

Information can also be obtained by analysing competitors and listening to suppliers and customers. Large companies may choose to undertake fundamental research on entirely new technology platforms.

**R&D funding from state agencies, EU and other sources**

Companies should familiarise themselves with available funding and application procedures. Grants are available for first-time performers and for companies with a track record of product development. Irish companies should contact Enterprise Ireland or Bord Bia for grant information.

**Recommendations to government/state agencies**

To help build an innovation culture at national and company level it is recommended that a nationally integrated programme for technology transfer from universities, 3rd level research institutes and semi-state/government agencies to industry be set up. In addition, funding bodies should play a role by actively facilitating companies of all sizes in grant applications. Specific measures may need to be put in place for entrepreneurs and start-up businesses in the food sector who have particular needs and requirements.
ACKNOWLEDGMENTS

Expertise and assistance from Edel Fenelon, Bridin McIntyre, Hilary Meehan (The National Food Centre) and Margaret Anne Lawlor (Dublin Institute of Technology) is gratefully acknowledged.