

Product Development Management (Lecture 9)

Product development management in the food system is complex, long term and capital intensive. It is a total company management involving every function in the company – so it is managing either a microcosm of the company or an integration of the company functions. For a major innovation, the company may set up a new venture company or division; or a new group of people may form a new company. At this time when many new companies are being formed on the innovations in information technology and biotechnology, it is interesting to speculate on new venture companies in the food industry and the basis of their new innovations. But at the present time, it is the large multinational food companies that dominate product development at all levels in the food industry, and it is management of product development in these companies that is the main basis for innovation in the food industry.

There are many small food companies that are also involved in product development on a small scale. Management of product development in the food industry varies from a group in the small company sitting around a kitchen table to the multinational food company with large R&D laboratories, small-scale production development plants and product development teams in many countries. The basic principles of product development management are the same in large and small companies, but often more difficult to apply in the large company because of rigid hierarchies. The framework for management in the food industry is the PD Process, and the recognition of management at different stages.

Principles of Product Development Management

Several principles of product development management have been identified. Relative importance does change, but the basic principles are robust and are useful as a basis for product development management. They can be grouped under basic philosophy, understanding, abilities and organization of the company as shown in Figure.



1. Basic Philosophy and Understanding

- Belief in product development as a major business strategy.
- Understanding emerging worldwide technologies, in-depth knowledge of technologies.
- Understanding the transformation of technologies into a want-satisfying products, intimate understanding of changing consumer needs.
- Developing a creative climate, creating spontaneous teamwork.
- Patience, realizing that innovations take time, going through cycles of success and failure, and that management has to aid and direct them to the end of product success.
- Recognizing the need for skills in systematic decision making and risk-taking.

These are still essential elements in product development that have continued to demonstrate their significance over a great diversity of situations and times, not to mention fashions! Unless management, especially top management, believes that product development needs knowledge of technology and consumer, and of their optimum relationship, then product development will stumble. Having recognized these basic knowledge needs, they have also to recognize that there needs to be a creative atmosphere and time to reach product success. Lastly, they have to believe that the success of product development depends on their decision making, its quality and timeliness.

2. Abilities

- Systematic selection of the best projects, using information sharing and group decision making, creating an idea generation and evaluation with all people involved in product development, setting decision processes based on the product development goals.
- Careful analysis of the customer's level of sophistication and the product designer's level of technical sophistication, creating collaborative roles between product design and consumer/market research, educating product designers on consumer needs and wants, educating marketing on technical possibilities and problems.
- Finding and coordinating the resources and knowledge for product development, upgrading knowledge to make use of new technology, nurturing methods for new technologies, selection of technology with fit to present or planned future company technology, predicting costs of adoption of new technology in finances and company organization.

- Elimination of disharmony between R&D and marketing groups, making open communication an explicit responsibility of every employee, using joint R&D/marketing task forces.
- Reducing complexity and problems, breaking large projects into manageable stages, identifying and eliminating mild problems before they become major.

Management at all levels needs to have the abilities to recognize the path of the project and to coordinate the knowledge, resources and people to follow the path efficiently and effectively to product success. There is a great deal spoken about multidisciplinary, cross-functional, inter-functional, intra-functional, integrated product development, but basically product development needs to be recognized as a many-faceted process which can only be achieved by collaboration between people with different knowledge and skills. It cannot be enclosed in specialist or functional boxes such as marketing or production. Management needs to understand the meaning of company collaboration and to have the ability to put into action a multifaceted product development project based on collaboration.

3. Organization

- Design of product development organization, ability to set the tone, posture and prevailing attitudes towards product development, creating an organization to fit the needs of members and of customers, encouraging responsibility and creating multidirectional communication.
- Cost-effective project management, selecting the method that relates to the problem, for example, incremental innovation using commercial line management, technical innovation using technical management, major innovation using separate project management or a new product committee.
- Flow management during the project, organizing the timely transfer and flow of product prototypes and knowledge, encouraging the skills and knowledge of the evolving technology and keeping team members involved to greater and lesser extent throughout the project.
- Product development budgeting techniques, understanding the changing cost/time ratios between projects and within projects, the financial analysis of the different stages of the PD Process to identify the costs and their possible improvements, the financial controls needed for the different cost/ time ratios.

Management has to design the organization for product development in the company, both for the overall new product program and for the individual project. There needs to be coordination among projects to have the optimum use of people and resources, as well as planning and control for the individual project so that it flows towards the final product launch without stumbling too often. Radical innovations are never straightforward linear progressions through the project; there is often recycling, especially during the earlier stages, but these returns to earlier stages in the project need to be managed.

Incremental Innovation

A series of small improvements to an existing product or product line that usually helps maintain or improve its competitive position over time. Incremental innovation is regularly used within the high technology business by companies that need to continue to improve their products to include new features increasingly desired by consumers.

Radical Innovation

Radical innovation, concerned with exploration of new technology, is fundamentally different from incremental innovation that is concerned with exploitation of existing technology. "Radical innovation is a product, process, or service with either unprecedented performance features or familiar features that offer potential for significant improvements in performance and cost." It creates such a dramatic change in processes, products, or services that they transform existing markets or industries, or create new ones.

Incremental Innovation	Radical Innovation
Exploits existing technology	Explores new technology
Low uncertainty	High uncertainty
Focuses on cost or feature improvements in existing products or services, processes, marketing or business model	Focuses on processes, products or services with unprecedented performance features
Improves competitiveness within current markets or industries	Creates a dramatic change that transforms existing markets or industries, or creates new ones