Chapter 12 – Product and product management strategy as a part of business strategy

Product lifecycle management is an excellent tool for carrying out the business strategy of the company in suitable areas. This chapter examines what this means in practice. What kind of strategic possibilities does PLM bring?

Product lifecycle management as a business strategy tool

The general concepts and terms of business management are often a bit unclear and sometimes even a little vacillating. Fast changing, trendy business management isms, and three letter acronyms often increase the possibility of understanding different concepts in different ways. Business strategy expert and author of many management books, Bengt Karlöf, defines the concept of a company's business strategy as follows:

> The strategy is a decision to be made at present, to ensure the future success of the company.

According to Karlöf, the successful handling of strategy will first require the definition of a vision – a visionary statement – as well as choosing a road that leads to the set objectives. A successful business strategy also requires setting objectives and easily measured metrics. This also holds true when the development of the business is considered from the product management viewpoint. The realization of the strategy will surely fail if it has been formed too loosely or too summarily. Value-charged definitions like "excellent" or "profitable" are not exact enough to give a clear and uniform picture of the vision. For example, "serving the needs of after sales business" or "to enable new after market services," which have often been defined as strategic goals for product management, are not exact enough for strategy definitions. This chapter considers the making of those choices which are connected to the strategic planning of the business and which especially concern product management. We also look into the setting of strategic objectives and the measurement of success from the product management point of view.

From changes in the business environment to product strategy

It is very clear that your business strategy should have a huge impact on your product strategy, but in some cases also the other way around. The products already in your product portfolio will have a direct impact on your future business strategy decisions. Businesses renew their strategy from time to time to keep up with the competition and changes in the environment. This is necessary because the business environment is constantly changing in the modern business world. In addition to plain business strategy, manufacturing, IT, and telecom companies usually have a comprehensive technology strategy. This strategy should contain the technological framework for the future, for basic research, product development, manufacturing, and strategic sourcing. This is also a major and in many cases the single most important strategy variable in the modern world of high technology. Technologies are under constant and sometimes very rapid development, which has made technology decisions crucial for successful companies.

In the business environment, with all its internal and external variables, this must also reflect on your product strategy as well as your product portfolio. Through the product and portfolio strategy, changes should be implemented in the basic framework for product development, product development projects, and even more in the principles, concepts, and framework of product lifecycle management. Figure 56 provides a summary of the most important variables in the ever-changing business environment and business strategies of companies and their impact on product management.

Every successful company has a thorough strategy process, which is usually gone through annually, bi-annually, or every three years. However, the direct connection of the strategy process and business strategy to the products in the company's product portfolio – whether the company manufactures them itself or just owns the product concept – is too often unclear. An agile and flexible company that can adapt quickly to changes in market and business environment variables usually stays ahead of its competitors. Figure 57 features a very general level process of connecting the business strategy to product development and product changes. However, the connection between business strategy and product portfolio must be clear and well defined. In this kind of scenario, the tool needed to couple the monitoring of product performance back to set business strategy targets is definitely to be found in the practices, concepts, and IT-systems of product lifecycle management.

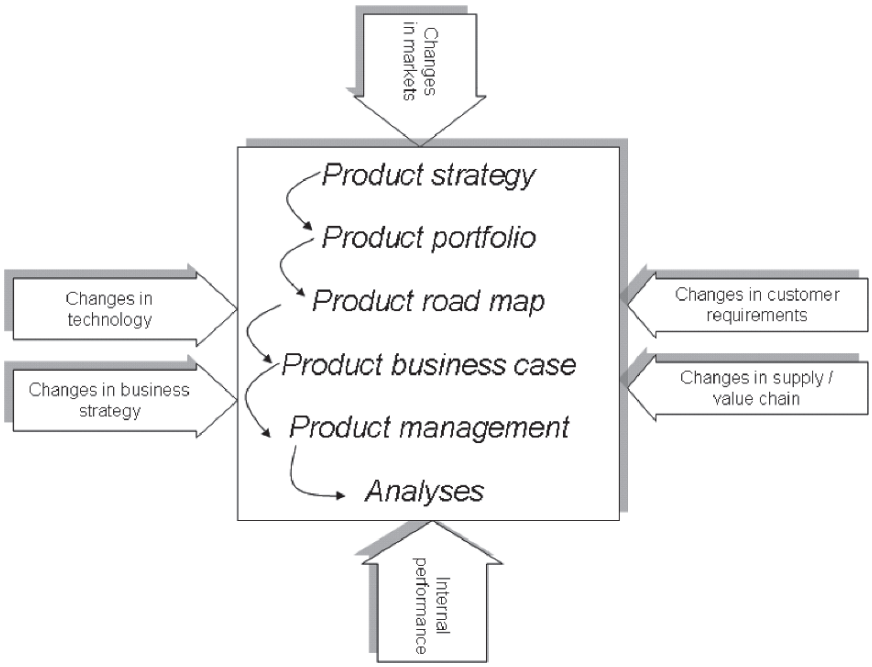

Figure 56. The business environment, business strategy, and their impact on product management.

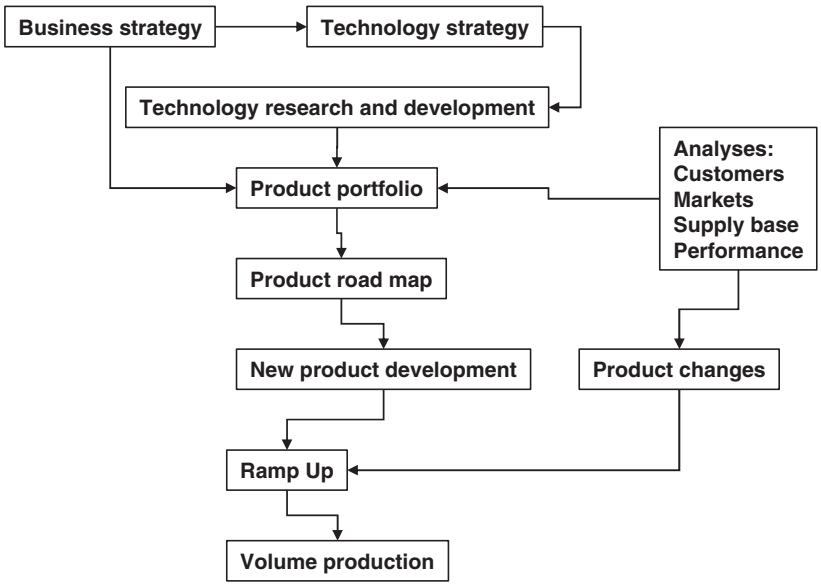

Figure 57. Connection of business strategy and product development and product changes.

Making a product strategy

A good and simple example of basic, general level product strategy decisions can be derived from the classical models of Michael Porter. Michael E. Porter says that at the strategic level you can compete basically on two things: cost and differentiation.

Cost Leadership

In cost leadership, a firm sets out to become the low cost producer in its industry. If a firm can achieve and sustain overall cost leadership, then it will be an above average performer in its industry, provided it can command prices at or near the industry average.

Differentiation

In a differentiation strategy, a firm seeks to be unique in its industry along some dimensions that are widely valued by buyers. It selects one or more attributes that many buyers in an industry perceive as important, and uniquely positions itself to meet those needs. It is rewarded for its uniqueness with a premium price.

Focus

The generic strategy of focus rests on the choice of a narrow competitive scope within an industry. The focuser selects a segment or group of segments in the industry and tailors its strategy to serving them to the exclusion of others.

The focus strategy has two variants.

In cost focus, a firm seeks a cost advantage in its target segment, while in (b) differentiation focus a firm seeks differentiation in its target segment.

Porter, Michael E., "Competitive Advantage."

This can be considered a basic and very general level product strategy, with a direct impact on product development. Such strategic decisions are also the framework from which companies must form their basic foundation and framework for product lifecycle thinking and set their competitive vision. Figure 58

Figure 58. Elements of competitive advantage, by Michael Porter.

shows a simple analysis of possible product strategy selections. These simple selections should also have a major impact on, and direct connection to product lifecycle concepts and goals related to development initiatives in the area of product lifecycle management.

As shown in figure 59, a company can base its core elements of competition on, e.g. one of the four areas presented in the figure:

1. Being a cost leader, with low, cost high volume products and a very narrow product portfolio
2. Being a technology leader, with the most advanced products built on the best available technology but at a high price
3. Being an operations leader, able to bring products to the markets more quickly and with lower costs than competitors
4. Being a service leader, providing its customers with the best and most valued services

When a company forms a basic business strategy and sets the competitive elements for business, it also forms the basic grounds for product lifecycle management. This basic framework should be interpreted as a set of guidelines for developing the practices and concepts of product lifecycle management according to the business strategy. A corporate-wide business development project, focusing on product lifecycle management, will succeed only if this framework of business and product strategy guidelines is recognized and consulted.

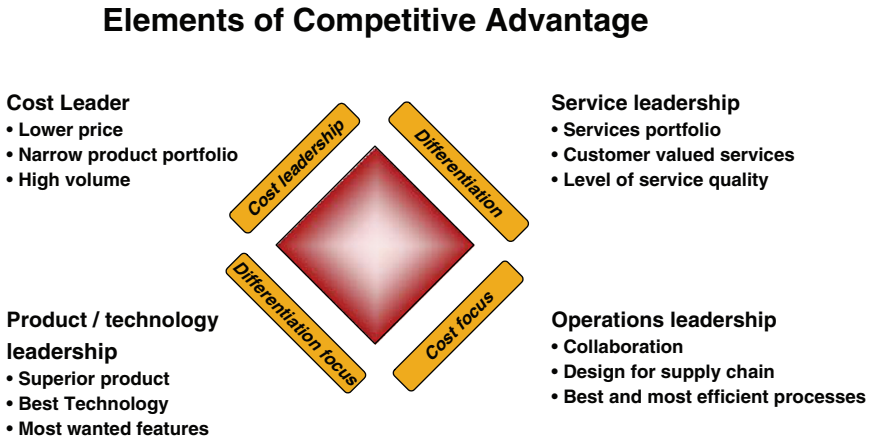

Figure 59. Impact of strategy decisions on product management.

Product management strategy

The comprehensive and efficient development of product management has to begin with the compilation of the product management vision. It can be derived from the business vision of the company or it can be thought out separately and then adapted to the business objectives of the company.

A Well-Considered Vision

- Gets the organization behind the common vision
- Helps decision-making
- Creates a foundation for planning strategy
- Facilitates communication
- Questions the present state
- Brings out differing operational models

An accurately set, credible and carefully considered vision always has great significance for the actual development project. It enables long-term decisions to be made on the direction of development and on the development goals of the whole organization. When this has been done, it is no longer necessary for development projects to chew over questions like what is our goal, what exactly are we doing

with this project? Product lifecycle management is a tool with which the company can carry out these strategic goals in the product and order-delivery processes. It is also an extremely acceptable method for developing the operative functions of everyday business.

From the product management and business strategy point of view, the following old elements of competitive ability still exist in manufacturing industry:

- Time to market – the time required to bring a new product to the market
- Time to volume – the time required to begin the mass production of the product
- Time to react (i.e. flexibility) – the time required to carry out changes demanded by the market, customers, or internal interest groups in the supply network

Another essential factor of competition among capital goods manufacturers has arisen lately due to the trend towards value adding after market services.

- Time to service – the response time to carry out a service order from the customer

One conclusion can be derived from these elements of competitive ability: it is all about time. Indeed, former director of the global manufacturing giant ABB, Percy Barnevik, has said that the future does not belong to the big; the future belongs to the quick. Bad performance in time-to-market and time-to-volume indicators can take all the profitability from a company's new products as early as the product launch phase. Indeed one can say that in many ways the carefully considered bringing to market of new products – well predicted and carefully planned product after product – is the element that provides companies with an even and growing cash flow and good margins.

Seventy five to eighty percent of the market value of many companies, especially technology companies, consists of expertise. The value lies in immaterial capital and in the ability to develop the products wanted by the market. Ultimately, the success of these companies on the international market is determined by their ability to develop and design new products, answering quickly to the demands set by the market. So product development and the flexible, high-quality collaboration of design and engineering networks are guarantees of the greatest effectiveness, speed and success.

Overall, the issue, in addition to the elements mentioned, is that the company must succeed in developing an incomparable product with properties that provide customers with all the value they want – and then add the best possible customer service. For this jigsaw puzzle to produce the desired result from the supplier's point of view requires a big demand and good margin for the products and services. In order to achieve this, the operation of the company must be flexible and efficient. Product lifecycle management is an excellent tool in the pursuit of this competitive edge.

So how do we bring the new products that customers want, faster and faster, to market? The one and only secret recipe for success will not be found here. On the other hand, companies have very similar problems to which similar solutions can be found. Some common background issues are slowness in replying to customer needs and an inability to carry out the demanded changes when bringing new products to the market. The same solutions, on a rough level, can also be found when ramping up mass production or trying to meet customers' maintenance requests, irrespective of the field of industry or the company. The following summary shows a few clear and general methods for meeting the challenges and measuring success in the performance.

Time to market: the time required to bring a new product to market

Problem

- The time needed to create a new product and bring it to market (Time to market), in other words the turnaround time for the NPI (New Product Introduction) process – the first stage of the product process – is too long. This leads directly to lost market share, lost earning possibilities, and loss of competitive advantage. Your competitors get into markets before you. One generic rule can be brought up: if it takes time, it also takes a lot of work. In other words, the process is inefficient.

Causes

- The NPI (New Product Introduction) process is too complex and ineffective. The process may have been formed ad hoc for earlier generations of products, for older technologies, and according to older principles of product development. The current NPI

process does not meet the demands of today's business needs. It might also lack an operations model that is sufficiently formal and carefully designed to match the development project model needs of the products that the company currently produces.

- The company lacks the ability to use the opportunities for collaboration brought by CE and networked company structures. This leads to ineffective working methods and to the repeated manual creation, input and conversion of product information at each information transfer stage.

Indicators to measure operations

- Setting indicators for the turnaround time (requiring a formal project model, e.g. gate model with milestones) and constant follow-up during the NPI-phase of the product process
- Ability to share information within the organization or with partners (e.g. number of stages needed to build a complete BOM (Bill of materials from product design to production)). What percentage of the BOM information from the previous stage can be utilized automatically in the next stage?
- The number of errors and corrections, for example in the BOM

Development potential brought by PLM in this area

- Cooperation in the value network is possible (CE, Collaboration).
- The use of various data standards (e.g. XML).
- The transfer and distribution of information accelerates; the management of information improves; workflows make it possible to support formal project models.
- Good usability and transfer of information between separate systems and parties becomes possible.
- The quality of information improves (i.e. less errors due to misinformation and manual information processing phases).

Time to react: the time required to carry out the changes demanded by the market and customers

Problem

- The company is unable to react quickly enough to changes that have taken place in the market, in technology, in the supply network, or in customer demands. Furthermore, mistakes or shortcomings that have been perceived in the products or product designs reach the market because the company cannot react to them quickly enough. The slowness of the process means that the company is unable to bring its products to market in rhythm with customers' wishes, market changes and set timetables, or to collect the greatest possible margin on its products. The margin might also be drowned in corrections to quality problems, in the production of products, during delivery of the product, or even after the product is delivered to the customer.

Causes

- The speed, effectiveness and productivity of the product process and change process are especially bad during the NPI phase as well as during the product design maintenance phase of the product process. It takes too long to collect customer demands and quality and design feedback from production and customer service as well as to handle their conversion into product changes. Changes to product design are carried through too slowly and it is not possible to organize several product changes simultaneously. There may also be shortcomings in the definition and streamlining of processes in this area.

Indicators to measure operations

- The number of product changes and their nature (the causes of changes and their mean distributions should be classified in various classes and sub classes) before and after launching of the product.
- Time used for carrying out changes.

Development potential brought by PLM in this area

- Supporting the formal change processes with appropriate tools

- Shortening the turnaround times for change processes and making the distribution, retrieval and transfer of information possible

Time to volume: the time required for ramping up the mass production of the product

Problem

- The company is unable to bring a large enough volume of its products to the market. This can be caused by the poor availability of the necessary components, in other words by the inoperability and poor capacity of sourcing or of strategic sourcing in terms of the long times needed to deliver a few key components. This can also be caused by poor quality in product design or production planning, or poor cooperation in networked product development. The products are not easy to manufacture with current machines (i.e. the DFM is poor) or there are problems in the production process.

- Communication in the supply chain can be poor and slow. The company is unable to outsource a part of its production or the production of some particular geographical area, for example to contract manufacturers. This can be due to defective product documentation or the inability to transfer correct and up-to-date product data. The information cannot be retrieved completely and reliably from the company's systems. The information might be collected from several different systems and integrated, for example using an MS Excel datasheet. This documentation and the changes to it required to start the manufacture of the product cannot be quickly, flexibly, and reliably delivered to the contract manufacturers, part manufacturers, and partners. Furthermore, the problem can be due to mistakes in the product documentation and slow change processes, which together cause bad products and many corrections during production.

Causes

- Poor ability to transmit product data in the supply chain; the information can be faulty or not up to date, or the version can be wrong.

- Quick changes are needed to the product design but the company is unable to make the necessary changes and transmit them to all concerned parties.

- The product data is defective, for example for the convertibility of components.

- Product lifecycle management does not operate as a whole. The retrieval and maintenance of item information function defectively.

Indicators to measure operations

- This area can be measured in terms of the time to full-scale production from the launching of the product (NPI), in other words the so-called Ramp Up time.

- Number of product changes during the ramp up time and the throughput time of the changes.

- Yield of production process in various periods (first production lot, second lot, etc.).

- Corrections made during production.

- First time right percentage.

Development potential brought by PLM in this area

- The opportunities brought by PLM for developing communication in the value network include the removal of the transformation obstacles and restrainers of information in the supply chain. Also included are better Design for Manufacturing (DFM) or planning of products for manufacturing and better Design for Supply Chain (DFS), or, planning of the product for networked production, for example in component sourcing.

- Quicker changes can be made to products in order to improve the manufacture of the product and change problem components.

  An example from DFS might be the better definition of component convertibility and accepted suppliers for certain components (AML, Approved Manufacturer List or AVL, Approved Vendor List), with a view to more accurate definition and scoring for the sourcing and planning of interchangeable components to be bought.

An example from DFM might be the earlier preparation of the jigs, moulds, tools, software and testing software required for manufacturing, based on more exact product data and controlled changes.

Time to service: the response time to a service order from the customer

Problem

- Customers are being lost to competitors better able to produce after market services. The competitors are able to serve their customers more quickly and with a shorter response time. Furthermore, the availability and quality of services are better.
- Every service order requires hours of labor and dozens of phone calls and involves several people to complete a simple task, which is done wrong the first time.

Cause

- The availability of product documentation from the customer interface (from the maintenance site, field office, or maintenance partner) is poor. The retrieval and transfer of product data are time-consuming and laborious and require many manual stages.
- Disconnected and outdated product documentation, and uncontrolled product changes during the life cycle of the product, are seen in after sales as version conflicts and invalid documents.

Indicators

- Service turnaround time from customer request to delivery
- Work required to fulfill the customer request, in hours
- The customer's opinion of the service
- bility to stick to the promised delivery time
- Getting new after sales customers
- Customer retention

Development potential brought by PLM in this area

- Improved availability of information from the customer interface; better retrieval and real-time availability of information from a single source
- Reducing of share of direct work in retrieval and transfer of information
- Improved ability to serve the customer

Summary

- A comprehensive product strategy and well considered product portfolio are the basis for competitive advantage.
- Product management strategy must follow the strategic framework of business strategy.
- In the manufacturing industry, speed is usually a strategic competition factor.
- Product lifecycle management is a good tool for carrying out the strategic goals of the company in the area of customer and product processes as well as in developing of operative functions.