

COMBINING MULTIPLE PERSPECTIVES FOR DEVELOPING NEW VALUE-ADDING OFFERINGS - TOWARDS INTELLIGENT CHECKPOINT MANAGEMENT SYSTEM

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Abstract

Firms often focus on just matching and beating their rivals on attributes commonly agreed as important by customers and industry players. From companies' point of view, every player belongs to some well-defined strategic group. Within every strategic group, strategies tend to converge along the same basic dimensions of competition and the value is created using similar methods and value chains. Companies' new product development (NPD) processes reflect on ways of competing. Typically, firms have only one NPD process, which favors incremental improvements to existing products and for fixed market context. This paper sketches new approach to create value by combining design, marketing, engineering and strategic perspectives early in the NPD process. It is grounded on several principles. Firstly, instead of just seeking incremental improvements to existing products, customers and market contexts, new ideas should also be looked from broader arenas; from new market contexts, by creating new market space, and by changing how value is created to the customers (value chain and market structures), changing the value itself that is offered (new dimensions or combinations) as well as changing to whom the value is created (new customer groups). Secondly, new ideas should be divided according to uncertainty level they are facing. Thirdly, different uncertainty levels require different development process models. Checkpoints and requirements cannot be the same when new offerings are varying significantly and they are targeting at different things. And fourthly, in order to design new value chains, value offerings, strategic positions or new customer groups, key developer groups – strategist, engineers, marketers and designers should be able to collaborate early and often enough to discover and utilize these different new ideas.

Introduction

When all the basic assumptions are held constant in innovation thinking – to whom the idea is targeted at, against whom are we competing, what is the added value that is offered and how the value is created – it is certain that “new” offerings are just incremental improvements or facelifts to existing products. Even though incremental improvements are important part of surviving in most of the businesses, they are seldom the source for higher profits and growth. Rather, when companies try to grab a greater market share of existing demand by accepting industry boundaries and well-defined rules of the game, prospects for profits and growth are reduced.

Creating and commercializing really new innovations requires combining multidisciplinary expertise from the very fuzzy front end to the after-the-launch competition. Otherwise it is impossible to have simultaneously deep enough understanding of details as well as broad enough understanding from various technologies, activity systems, market contexts and meanings.

I believe that all the needed information to create highly successful new value offerings already exists in companies. The problem seems to be that knowledge and sparks of creative enthusiasm are fenced behind specific expertise areas protected by professional language, concept systems and daily routines. Thus, people have seldom opportunities to co-operate effectively and to discover something really new. This article is an effort to ease that co-operation.

The paper is organized so that a brief description of key personnel groups and their core concepts is presented first. After the common ground is created, discussion continues by presenting examples of what kind of innovations are possible if multidisciplinary expertise are combined and what kind of arenas should be analyzed if really valuable new ideas are to be created. It is not enough to discover new opportunities – we must also take a look how such new ideas should be realized. Approaches and process models are divided according to their uncertainty level. Finally, key ideas are summarized in conclusions.

Key personnel participating the development of new value offering and their core interests

Strategist. Strategy answers the question of why our company is making more money than our competitors. Thus, strategy is all about creating advantage over competition, that is, creating *Competitive Advantage*. How sustainable is the competitive advantage then? As Porter argued, “a company can outperform rivals only if it can establish a difference that it can preserve” (Porter 1996). Thus, strategy must rest on unique activities and trade-offs, that is, doing things differently than competitors. Trade-off positioning choices determine not only which activities a company will perform and how it will configure individual activities but also how activities relate to one another – strategy is about combining activities, how they fit and reinforce one another. Sustainability comes from the unique activity system, not from the parts.

Thus, if you are a designer or a marketer or a manufacturing engineer and you are discussing about new ideas, it is important to always remember that strategists participating the debate are mainly interested of your firm’s competitive advantage. They are interested of how the new idea might affect your firm’s position relative to its competitors, suppliers, buyers, new entrants and substitutes. How the new idea fits with the whole activity system. Are there synergies between processes, activities, channels etc? Does the new initiative reinforce or decrease the fit?

Engineers. In the world of new product development, at least engineers in technology development, product development and manufacturing should be dealt with separately. If it is not pure university-based basic research, technology developers are sensing commercializing potential of various emerging technologies (Eldret & McGrath 1997). The most important threshold from their perspective is to make sure that new technology is feasible, that is, engineers want to be confident enough that new technology has merits and that it is working properly and thus ready for product development programs. When the feasibility is reached, other technical alternatives are typically ruled out, and the drive toward a specific product begins.

Product development is the world of constant resource strains and competition with other projects in the company or with other companies. This makes product development engineers quite disciplined and goal-oriented. The main task is to get the working and finalized product out of the pipeline.

Manufacturing in turn is characterized by constant improvements in quality, costs and efficiency. From manufacturing perspective would be ideal that each factory would focus producing only one product forever. However, in real life that is seldom the case. Thus, manufacturing engineers try to deal with the complexity and dynamism. Complexity can be seen as containing three key attributes (Ketokivi & Jokinen 2003): 1) Product mix complexity, which denotes the variety of different products to be produced from the factory. 2) Order decoupling points, which are points in the production process at which the product is earmarked to a specific customer. In bulk products, the order decoupling point is at final

packing and outbound logistics. 3) Batch sizes. So, all the new ideas that are increasing complexity would get some concerns from the manufacturing. However, sometimes even complexity-increasing ideas might be welcomed because of manufacturing reasons linked to dynamism. Ketokivi & Jokinen identified three key dimensions within dynamism: 1) dynamism in customer requirements, 2) demand dynamism (variability and unpredictability), 3) industry cyclicalities (like raw material prices and capacity utilization). The higher the dynamism the more difficult it is to achieve focused operations. And, as Ketokivi & Jokinen argued, in some instances, higher dynamism makes the focus even undesirable. “When customer requirements are dynamic and perhaps cyclical, the manufacturing function is “shooting at a moving target”, and any attempt to focus today may be the wrong approach tomorrow.” Especially in capital-intensive industries, during times of low capacity utilization, firms must do everything they can to find complementary products that can be produced using the same technology that is used to satisfy demand for the usual products. Therefore, it makes sense to expand company’s product mix, sometimes just to cover fixed costs.

Naturally, technology has a strong link to strategy as well. Burgelman et al (1996) divided technologies in four groups according to their impact on competitive advantage. First group is defined as *emerging technologies* – technologies that have not yet demonstrated potential for changing the basis of competition. Second group contains *pace technologies* – technologies that have demonstrated their potential for changing the basis of competition. Third group contains *key technologies* that are embedded in, enable product/processes, have major impact on value-added stream (cost/ performance/ quality), and/or allow proprietary/patented positions. Last group contains *base technologies* – they have minor impact on value-added stream; they are common to all competitors and perceived as commodity. New value adding innovation can contain technologies from all of the groups. Technology developing engineers are mostly interested of the first two groups, product development engineers’ focus is mainly on second and third groups, and manufacturing engineers are optimizing key and base technologies while simultaneously preparing for pace technologies.

Marketers. Marketers’ domain is consumer behavior and market transactions in both operative and strategic levels. Brand management captures the firm’s and/or new offer’s identity and how customers relate themselves to that identity. In that sense, brand management is perhaps the most abstract level activity in marketing. As a more concrete toolbox, marketers are using marketing mix (place, promotion, price, product [physical assets], personnel, procurement) to enhance the transactions and relationships. Also, marketing people are traditionally responsible for positioning and targeting new initiatives to the most suitable consumer groups.

Designers. What about designers then? Simply put, if strategists take care that new initiative fits with the corporate activity system so that it increases company’s or business unit’s competitive advantage, and if engineers are making sure that new offer actually works and can be done, and if marketers are assuring that the new offer is adding value to the customers, relationships are strengthened and that market transactions are as smooth as possible – what is left to designers? Design can be defined as the integrated innovation of form and function (Verganti 2003). Each product has a particular language and meaning, which captures not just aesthetic appearance but also communicative and semantic dimension of a product. The appearance of the product is just one of several ways in which it expresses a message to the user. Apart from styling, what matters to the user (in addition to the product’s actual functionality) is the product’s emotional and symbolic value – its meaning. This is very close to marketing’s core interest and especially branding. Designers should co-operate with engineers to ensure that functionality satisfies the operative needs of the customer, and at the same time, designers should co-operate with marketers to ensure that the product’s meaning tickles customers’ affective and sociocultural needs. Moreover, the whole value-adding

offering should resonate and enhance the fit of the corporate system and thus improve the competitive advantage. In that sense, value chains and activity systems should be designed as well. Therefore, in essence, design is an inquiry aimed at "making sense of things".

Discovering new valuable idea by combining different perspectives

Now we have a common understanding of what the key personnel groups are interested of and what are the fundamental concepts they are utilizing. Key point here is that it is very difficult for any individual interest group to change the basic assumptions about the market, industry and innovation by themselves – it is much easier to change the rules of the game if all the key players have a common goal. Now it is time to move to the next question – what kind of new value offerings are possible if those key personnel groups are searching new valuable opportunities together? In general, there are three arenas for changing the rules of the game: who are my target customers, what is the added value I want to deliver to them, how will I create it (Govindarajan & Gupta 2001). In the following, some ideas are briefly described (Jaworski et al 2000, Kim & Mauborgne 1999 & 2005).

Usually, firms are operating in more or less fixed market and industry contexts. Marketers are optimizing customer relationships and market transactions, designers and engineers are making incremental improvements to increase profit margins and decrease costs while strategists are planning moves that temporarily outwit the well known competitors. However, in making every purchase decision, buyers implicitly weigh substitutes, often unconsciously. For example, by going from place A to the place B one can drive there by using a car, a rented car, a taxi, one can take a train or a bus or a helicopter or a plane or one could go there by foot or by bicycle. Still, bicycle firms just try to beat other bicycle firms by the rules accepted to be valid in existing bicycle business, helicopter firms compete against other helicopter firms etc. By analyzing these substitutes enables us to see our own offering from new perspective and perhaps helps us to detect new interesting customer groups. The space between substitute industries usually provides opportunities for value innovation.

Similarly, new market space can be found by looking across complementary product and service offerings. In most cases, other products and services affect our product's value. E.g. the ease and cost of getting a babysitter and parking the car affect the perceived value of going to the movies. The key is to define the total solution different customers are seeking when they choose a product or service. A simple way to do so is to think about what happens before, during, and after your product is used.

When customers and competitors are perceived as fixed new technologies are selected according to how suitable they are for those fixed market contexts. Taking the opposite path – selecting market contexts for a technology – is a good example of an initiative that becomes possible only by combining multidisciplinary expertise and loosing the assumptions of who are our customers. As an individual group engineers, marketers, designers or strategist do not have enough expertise to conduct such search. In order to succeed, there must be simultaneously deep enough understanding of technology's merits, its working principle and manufacturability, deep enough knowledge about a great variety of market contexts, deep enough understanding of company's whole activity system as well as deep enough understanding of variety of meanings that could be attached to the new offering by changing its visible or symbolic features. As Adner & Levinthal (2002) argued, there are probably many technology developments that could take off, in the proper application domain.

In most industries, every player belongs to some strategic group. The term strategic group refers to a group of companies within an industry that pursue a similar strategy. Strategic groups can generally be ranked in a rough hierarchical order built on two dimensions, price

and performance. Each jump in price tends to bring a corresponding jump in some dimension of performance. Thus, customers are divided according to well-defined groups that are expected to value the performance combinations accordingly. Most companies focus on improving their competitive position within a strategic group while there could be new space available between the groups. For example, some customers would value a cheap but silent car. However, when competing according to existing rules, silent cars are offered only in premium price brands and product groups.

In most industries, competitors converge around a common definition of who the target customer is when in reality there is a chain of "customers" who are directly or indirectly involved in the buying decision. The purchasers who pay for the product or service may differ from actual users, and in some cases there are important influencers as well. While these three groups may overlap, they often differ. When they do, they frequently hold different definition of value.

New market space can be found by looking across functional or emotional appeal to buyers. Some industries compete principally on price and function based largely on calculations of utility; they appeal is rational. Other industries compete largely on feelings; their appeal is emotional. Body Shop is a good example in shifting from emotional appeal to functional one.

New market space can be found by looking across time. Instead of adapting to external trends as they occur to understanding how the trend will change value to customer.

Rules of the game can be changed also by driving the market structure, that is, proactively changing the composition of the players by, e.g. buying them out or by getting new players to enter (new distributors etc).

Analyses described above are very fruitful to execute within a multidisciplinary group since different people see different valuable details. It is certain that when discussing about complementary products, substitutes, strategic groups and their key performance parameters, emotional/ functional appeal, chain of buyers or trends as well as market structures, heterogeneous group with good understanding of each others key interests will be more effective in distilling the gems out of the data.

Realizing new valuable idea according to its uncertainty

Discovering valuable idea is important but it is not enough. Even the most brilliant game breaking idea is worthless if it is never realized. Key point here is to understand that because there are very different kinds of new value initiatives there cannot be just single process to realize them. In the following discussion, three generic approaches are sketched that might be suitable for different kinds of new offer development projects.

Many product development and design researchers have provided process models for new product development, technology development and commercialization. The most widely used process models are variations on the Stage-Gate™ process (Cooper et al 2003). The basic assumption with Stage-Gate™ or waterfall-type models, as they are also called, is that all the key issues can be defined, planned and scheduled during the concept design phase at the start of the product development process. In other words, this type of process model relies on predictable information and thus anticipation. However, anticipation is an effective working mode only in stable markets where customer preferences and technologies are well known and do not change fundamentally during the product development process. A proper concept design phase is based on information, which has been carefully gathered and thoroughly analysed. The level of certainty does not increase substantially during the concept definition

process, because it is already high at the beginning of the process. Also, the earlier the concept is frozen, the faster the downstream process can be implemented.

In more uncertain, complex and dynamic business environments, accurate information about the key features, performance variables and customer preferences is not readily available during the very front end of the process. This kind of uncertainty has direct implications for the NPD process. As a result of the lack of reliable information at an early stage, the key process factors for successful results are planned flexibility and reaction capabilities (Verganti 1999, MacCormack 2001).

There are at least two challenges posed by more uncertain environments for Stage-Gate™ - type of models. Firstly, greater uncertainty challenges the assumption that all the necessary information about potential design choices is known or can be discovered, when the concept is defined at the start of the new product development process. In uncertain and dynamic environments, companies cannot predict the impact of potential design choices in advance. Therefore there is a greater need to keep the product concept open to change and adjustments. To achieve this, the early design stages must overlap with those that follow. These later phases must start before the earlier ones can be completed, in order to allow information to be fed in and to create an iterative process of product definition. A decision made in an early phase must be tested in the next one in order to be able to understand its impact. In the Stage-Gate™ approach, phases with low interdependence might be carried out concurrently due to speed imperative. In more uncertain business environments, phases are run in parallel, mainly because the earlier phases cannot be completed until the information from the following phases is available.

Complex, systemic products pose the second challenge for Stage-Gate™ models. Feedback on how a product performs as a part of a system is not available until the later stages of a project, when the characteristics of each module and subsystem have been developed. Therefore feedback must be obtained from early system-level tests, implying that the later stages must also overlap. Hence the first test of system-level performance should take place before the modules are complete. Moreover, in the most flexible processes all the phases will overlap, thereby allowing feedback from system-level tests to have a direct impact on the evolution of the product concept. Again, quite contrary to the Stage-Gate™ approach, the later one is able to freeze the concept the better, since uncertainty is reduced significantly during the process.

In the most challenging end of the uncertainty continuum are discontinuous or radical innovations in dynamic, rapidly changing business environments where technologies, markets and customer preferences are emerging, fluctuating and mostly unknown. Since product development is, as Eisenhardt and Tabrizi (1995) express it, “a very uncertain path through foggy and shifting markets and technologies”, traditional market testing is of limited use (Leonard-Barton 1995, Lynn et al 1996). Similarly, being flexible during the initial NPD process is not enough. Rather, one has to launch something to the marketplace before accurate information regarding customers and features can be obtained. Information cannot be gathered before it is created. Consequently, even the first launched product or products can be seen as concepts and thus as part of the concept design phase. The certainty level does not increase substantially until the first version is launched and real-life experiences have been analysed. On the basis of this knowledge new variants can then be developed and launched.

Naturally, this last approach is useful only if management is confident enough to commit to comprehensive experimentation or extensive concepting, even though it does not know exactly which kinds of concepts will turn out to be the winning ones. As Lynn et al. (1996) argue, “probing with immature versions of the product makes sense if it serves as a vehicle for learning.” The key challenges in this kind of iterative process are the speed and costs of

market and technology knowledge accumulation, rather than being exactly right with the first launch.

Conclusion

The aim of this paper is to increase the possibility for firms to find highly valuable new ideas and to encourage realizing them. There are several key points to achieve this. Firstly, firms typically already have all the required expertise and knowledge to change the rules of the game. Problem is that highly skilled workers and their expertise itself can act as a barrier. The specific knowledge that is needed in order to excel in professions might hinder co-operation since expertise areas are protected by professional language, concept systems and daily routines. In short, such knowledge is targeted to optimize part of the system, not to create new optimal value system. To achieve effective, daily communication in the context of new value offering creation, what is needed is a common language and concept systems that are anchored round customer value, not round any specific expertise area. Secondly, highly skilled professionals have their own methods to create value. Thus, there is a need for generic methods to create new value. In this paper, several methods were briefly described. The more multidisciplinary the group the more effective the methods are in distilling valuable insights for new offerings. Thirdly, in addition of being aware other professionals key concepts and methods, all the key players in value creation should be aware of various realization options. New ideas must vary according to how uncertain they are in a short term – otherwise only safe bets are accepted to realization. And, because new ideas differ in uncertainty there must be different realization processes as well. In this paper three generic approaches were described.

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