



Risk and uncertainty in innovational management

Risc și incertitudine în managementul inovațional

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Abstract

Firms face a certain major problems in recognizing the potential of an innovation. These barriers can be a real problem for organizations. Yet, managers must overcome them to produce the innovation that may prove vital for long – run survival of their firms. Our goal in this article is to explore these uncertainties.

Keywords: *innovation management, innovation risk, uncertainty*

Rezumat

Firmele se confruntă cu o serie de probleme majore în recunoașterea potențialului unei inovații. Aceste bariere pot fi o problemă reală pentru organizații. Cu toate acestea, managerii trebuie să le învingă pentru a produce inovații care se pot dovedi vitale pe termen lung pentru supraviețuirea întreprinderilor lor. Scopul nostru în acest articol este de a explora aceste incertitudini.

Cuvinte-cheie: *managementul inovației, riscul de inovare, incertitudine*

JEL Classification: D81, O31, O32

Introduction

While top management seems to be paying more attention to R&D, it is still fraught with risk and uncertainty. Successful R&D projects can produce high returns, but unsuccessful ones produce losses. This risk is a major problem for managers, and it must be consciously managed (Hitt, Middlemist and Mathis, 1986). Both financial and market risks can

be minimized with good management. For example, uncertainty and risk can be reduced by keeping managers in other areas of the organization (e.g., marketing, manufacturing) well – informed and developing a rapport with them which helps ensure that projects fulfill managerial expectations and requirements. Periodic reviews and information exchange can help build rapport. Further, formulating precise objectives and an effective strategy for R&D operations are critical elements in managing risk. Therefore, although risk is considerable in most R&D activity, it can be managed with planning and foresight (Hrișcev, 2001).

There are a number of obstacles to realizing and profiting from innovation to the fullest. Among these are, (Afuah, 1998), the tendency to fight over recognition for one's individual innovations, the development and guarding of "industrial voodoo", the risk that time and energy will be spent on innovations that are not relevant to the company's central purpose, and the risk that an innovation will be over- or underestimated in a way that will result in mismanagement and cause a financial loss or a lost opportunity.

Obstacles in recognizing the potential of an innovation

Fighting Over Recognition

That happens in many companies to a greater or lesser extent. People guard their own innovations and ideas carefully, fearing that sharing them will rob them of the recognition for their creativity and hard work. There is a risk that people will take their best ideas to a competing company where they feel they will be recognized and compensated, or to start their own business in competition with yours. They cause untold damage in terms of lost opportunities and time and energy spent fighting with co-workers rather than collaborating.

"Industrial Voodoo"

A closely related phenomenon to overt fights over ownership of a particular innovation is "Industrial Voodoo" or those small secrets that any experienced worker tends to acquire. These are tools and methods that are not in any procedure manual that improve productivity and are used to improve individual performance.

Experienced workers tend to collect knowledge about how to do their job better and faster than everyone else, and they may or may not share this information with other workers.

Irrelevant Innovations

One of the problems with allowing the time and space to think out of the box is that sometimes workers come up with innovations that are of questionable relevance to their jobs and to the bottom line of the company.

Booms and Busts

Even successful innovations cause incredible booms and busts. People under- or over-estimate the importance and potential profits of innovations. Electricity, the railroad, the telephone, the fax machine, the 8 track tape, and the Internet are all examples of the chaos that new innovations can cause for people who work with and/or invest in them.

The larger an innovation is, (that is, the greater potential gain) the more difficult it can be to manage. More people get involved, more money is staked, and more is put at risk.

There are clearly other goals for innovation within particular organizations that will vary from the list given earlier. Attaining goals must be the ultimate objective of the innovation process. Unfortunately, most innovation fails to meet organizational goals. Figures vary considerably depending on the research. Some research quotes failure rates of fifty percent while other research quotes as high as ninety percent of innovation has no impact on organizational goals. One survey regarding product innovation quotes that out of three thousand ideas for new product only one becomes a success in the marketplace. Failure is an evitable part of the innovation process and most successful organizations factor in an appropriate level of risk. Perhaps it is because all organizations experience failure that many choose not to monitor the level of failure very closely. The impact of failure goes beyond the simple loss of investment. Failure can also lead to loss of morale among employees, an increase in cynicism and even higher resistance to change in the future.

Innovations that fail are often potentially 'good' ideas but have been rejected or 'shelved' due to budgetary constraints, lack of skills or poor fit with current goals. Failures should be identified and screened out as early in the process as possible. Early screening avoids unsuitable ideas devouring scarce resources that are needed to progress more beneficial ones. Organizations can learn how to avoid failure when it is openly discussed and debated. The lessons learned from failure often reside longer in the organizational conscientiousness than lessons learned from success. While learning is important, high failure rates throughout the innovation process are wasteful and a threat to the organizations future.

The causes of failure have been widely researched and can vary considerably. Some causes will be external to the organization and outside its influence of control. Others will be internal and ultimately within the control of the organization. Internal causes of failure can be divided into causes associated with the cultural infrastructure and causes associated with the innovation process itself.

Failure in the cultural infrastructure varies between organizations but the following are common across all organizations as some stages in their life cycle:

- Poor Leadership;
- Poor Organization;
- Poor Communication;
- Poor Empowerment;
- Poor Knowledge Management.

Causes of failure within the innovation process

Common causes of failure within the innovation process in most organizations can be distilled into five types:

- Poor goal definition;
- Poor alignment of actions to goals;
- Poor participation in teams;
- Poor monitoring of results;
- Poor communication and access to information.

Poor goals definition. Organizations must state explicitly what their goals are in terms understandable to everyone involved in the innovation process. This often involves stating goals in a number of ways.

Poor alignment of actions to goals means linking explicit actions such as ideas and projects to specific goals. It also implies effective management of action portfolios.

Poor participation in teams refers to the behavior of individuals and teams. It also refers to the explicit allocation of responsibility to individuals regarding their role in goals and actions and the payment and rewards systems that link individuals to goal attainment.

Finally, *poor monitoring of results* refers to monitoring all goals, actions and teams involved in the innovation process.

Barriers to innovation

Earlier the risks involved in trying to produce innovations were described. The risks are multiple, arising within the organization in the form of several potential barriers to innovation:

- Competition for available capital;
- Time required producing returns;
- Conservative posture;
- Maintenance of the status quo;
- Inflexibility.

Inadequate capital

In most organizations, needs for capital exceed available funding. Consequently, R&D units must compete for available capital with manufacturing, marketing, and other units. The same is true for new project ideas produced in units other than R&D. Further, many of the alternative uses for capital are less risky than R&D. For example, in industrial firms, there often is need for new more efficient equipment and updated computer hardware. A manager can easily predict the benefits from the purchase of this equipment as opposed to that of investments in R&D.

Insufficient time

Another barrier is the time required for new ventures to produce a profit. One study showed that new ventures require an average of eight years to return a profit, and the average new venture produced only a 7 percent return after eight years. Perhaps more importantly, half of the new ventures required at least eight years to produce a positive cash flow, which means that a firm must be able to continue investing new cash in a new venture for at least eight years. Many new ventures require even longer time periods to produce positive returns, and some never do.

One might expect that those new ventures that gained market share early would produce returns earlier, but that is not the case. Data shows that those ventures that rapidly build markets in the first four years produce a negative 20 percent return on investment and a negative 58 percent cash flow. However, new ventures that hold or lose market share produce a negative 4 percent return on investment and a negative 19 percent cash flow.

A common myth is that small – scale operations are less risky. Data suggests that small – scale operations typically produce a negative 41 percent return on investment on the first two years, but large – scale operations have an average of only a negative 24 percent return on investment. As might be expected, small – scale operations often are less competitive.

Overly Conservative Approach

A third barrier to innovation is a general conservative posture within the firm which does not allow taking risks. Because risks can be considerable with new ventures, as shown by the figures just cited, innovation may be stifled. The unwillingness to take risks is often based on a “fear of failure”. Executives are afraid to fail, possibly because it might jeopardize their current jobs and even harm their entire careers. Many times, executives’ rewards (e.g., incentive compensation) are based on short – term profits. Therefore, bonuses for risk – taking executives

would be smaller, which provides little incentive for executives to make investments in R&D unless they plan to manage the firm for many years.

Maintaining the Status Quo

Another barrier to innovation is the force to maintain the status quo. This barrier may overlap with the conservative posture but it also goes beyond it. If a firm is currently doing well, executives and managers, and other employees wonder why it should change. Also, people tend to resist change. It is more comfortable and secure to maintain the status quo than face risks associated with change. Obviously, maintenance of the status quo precludes innovation.

Inflexibility

The final barrier we will discuss is that of inflexibility, which is a particular problem with large organizations. As a organization grow, they develop structures that help in control and management. However, these structures also often become inflexible and prevent the development and implementation of new ideas. Organizations with a conservative posture and managers who want to maintain the status quo also contribute to inflexibility. In this environment, new ideas are not proposed or developed, opportunities are missed, and the firm's products become noncompetitive.

Conclusion

While uncertainty will always plague the process of innovation, there are certain market and technological trends that can, together with a firm's innovation strategy, considerably reduce it (Dodgson, 2000). However, it is difficult to think of a more challenging aspect of contemporary management than managing innovations.

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