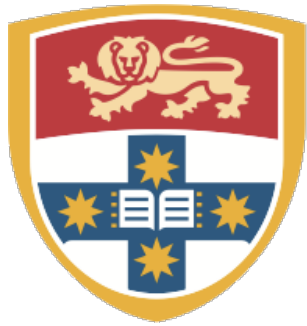




THE UNIVERSITY OF
SYDNEY

Project Management Graduate Program

PMGT 5875 Project Innovation Management

Individual Research Paper

Securing Innovation

Lecturer: Georges Klopotoski

Prepared by:

J [redacted] Sun [redacted]
[redacted]

Date	8 February 2011
Word Count	3545

Abstract

Technology is boosting. New ideas are coming up every single minute. How to manage and how to secure innovation is a burning question facing lots of project managers. Innovation is always inseparable from risks or challenges. If these risks or challenges cannot not be predicted or calculated beforehand, the desired results would not be achieved. Only do managers have a holistic insight into the project management, especially the innovation management, the organizations can survive in such a competitive global environment.

Table of Contents

Abstract	ii
1. Introduction	1
2. Models of Innovation	1
2.1 Definition of Innovation	1
2.2 Understanding Innovation	2
2.3 The Value of Innovation	3
3. Case study	6
4. Suggestion - how to secure innovation	8
5. Conclusion	10
6. References	11

1. Introduction

IN today's dynamic and turbulent world, organizations face a stark challenge - revolution or perish. Unless they keep renewing their products and services, and update the ways they create and deliver them, they risk being overtaken by competitors. Innovation - the process of change - is critical to the success of all organizations, large or small, in both private and public sectors.

Innovation is not only about the inventing of new product, but also the new process of doing business or new strategies of marketing, etc. Most managers understand the importance of the innovation management. But making it happen requires a systematic, hands-on approach (Kafouros, 2008). Managers have to learn and master innovation management in such a competitive global market. The key elements in successful leadership of innovation include developing a clear strategic vision and communicating it, searching for innovation triggers, choosing a balanced portfolio of projects, and delivering these projects on time and within budget (Bessant, 2009).

Innovation is about human creativity, organized and applied across the organization. Managers need to understand how the innovation process works and how to mobilize this creativity. Also, how to successfully deal with the potential risks with the innovation is a hot discussed issue.

2. Models of Innovation

2.1 Definition of Innovation

Innovation is the use of new knowledge to offer a new product or service that customers want. It is invention + commercialization (Freeman, 1982) (Roberts, 1988). It is "a new way of doing things that is *commercialized*. The process of innovation cannot be separated from an organization's strategic and competitive context." The new knowledge can be technological or market related (Highsmith, 2010), for example, a new piece of software, a new Apple product, or a new marketing strategy. The product or service is new in that its cost is lower, its attributes are improved, it now has new attributes it never had before, or it never existed in that market before. Often the product or service itself is called an innovation, reflecting the fact that it is the creation of new technological or market knowledge (Afuah, 1998). For example, the discovery and development of Merck's cholesterol-bursting drug Mevacor was an innovation, as were Wal-Mart's location of discount retail stores in small towns in the southwestern United States and Federal Express's one-day delivery service (Afuah, 1998).

What's more, there is difference between innovation and discovery. When people discover something, there are two results that the discovery is going to be - one is that it is just a discovery; the other is that the discovery is turned to a new product or service which can be made good use of. For example, human did not discover fire - they designed it. The wheel was not something our ancestors merely stumbled over in a stroke of good luck; it, too, was designed. The habit of labeling significant human achievements as 'discoveries', rather than 'designs', discloses a critical bias in the western tradition (Goldenberg and Mazursky, 2002).

2.2 Understanding Innovation

To better understand how innovating works, three issues need to be raised (Bessant, 2009). Firstly, why should we innovate? Innovation always involves risks, and the rewards are not always obvious. Secondly, what can we change? You need to understand the options for innovation before you can make decisions on where to focus your efforts. And finally, how can we make it happen?

Why do we need to innovate? The assumption (Sharman and Johnson, 1997) is that a good test of any organization's current ability to innovate would be to ask such questions as:

- who is responsible for systematically collecting information on the external business environment?
- how is it distributed to those managers that can use it effectively in their work (and modify their current assumptions)?
- how many departments besides R&D are judged on their ability to introduce innovations in their policies and procedures?
- does the organization provide training programs in both organizational leadership and creativity?

The innovation process can be described as this formula: idea + implementation = innovation (Bessant, 2009). Almost every innovation starts with a new idea. The starting point for innovation is an idea for improving an aspect of the operations. Then the idea must become a practical reality before it can benefit the organization. Finally, successful innovation takes place only when both of these elements are achieved.

Another illustration of innovation is the people often relate innovating with survival: people often run the risk of being pushed aside by organizations that change what they create and offer the world (their products and services). New products and services have to be offered in new ways if the business needs to grow (Goldenberg and Mazursky, 2002). The following 7 points have successfully demonstrated innovation (Bessant, 2009).

1. Novelty in process - a faster, cheaper, or more efficient production process gives you an instant advantage.
2. Right thing - getting into a market early establishes your brand before the competition has time to develop.
3. Added complexity - offering something too complex for others to imitate places your product at a premium.
4. Product or service novelty - offering a product nobody else has access to guarantees you will have no competition.
5. New competitive factors - changing the base of your competition (e.g. from price to quality) can undermine your rivals.
6. Protecting intellectual property - new trademarks and patents generate revenue through fees for their use.
7. Rewriting the rules - offering people something absolutely novel can create an entirely new market.

The Charles Darwin's Famous theory of evolution, survival depends on the ability to change (Bessant, 2009). Those species which do not adapt and change to cope with an altering environment simply die out. The same can be said to be true of business organizations as well.

Another example is the earthquake-proof technology in Japan. Japan is a country where earthquakes often occur, as a result, they have to think about methods to predict earthquakes and minimize the damage that earthquakes will bring. They designed earthquake-proof technology and used it in buildings, which to a big extent minimizes the damage from earthquakes. Thanks to this technology, Japanese people don't need to be panic when the catastrophe occurs.

2.3 The Value of Innovation

People innovate to make a profit. Innovation is essential to survival, and also to development and profit (Highsmith, 2010). There are many ways in which innovation can improve an organization's revenue and customer base, and defend against competitors. These range from making existing processes more efficient, to producing something before competitors can imitate it, to completely rewriting the rules of competition in your market.

China is really doing well at copying or imitating things, from cellphones to computers, from websites to clothes. For example, since the Facebook was introduced in 2004, China soon introduced a similar website

named xiaonei.com, which is now very popular among university students. Other examples are ICQ - QQ, youtube.com - youku.com. To some extent, it's very like the *Keep-Away* policy before 1985, and China forbade everything from coming in.

Lenovo bought the PC section of IBM and continued its legacy - ThinkPad. Looking back at all the innovation that IBM has done during history, every single product or service had dazzled the world - POS machine, ThinkPad, etc.

In order to manage the process of making innovations happen, it is important to understand the different ways in which change can be categorized. To look at how much “newness” is involved - from incremental small steps to radical leaps forward. The results of innovation can be dramatic - from the first ever motor car to landing a man on the moon (Bessant, 2009).

Also, managers need to do differently to emphasize innovation. Several things need to be demonstrated to the customer (Afuah, 1998):

- speed of response
- choice
- rapid improvement in products and services
- “service added on to products”
- lifelong learning for their staff
- distinctive competence

There are also key challenges facing innovation management (Afuah, 1998):

- how to stimulate continuous innovation and change
- how to adopt radical innovative approaches to organizing and managing
- how to attract and retain people's know-how

Innovation is always related to ideas. By some research into climate variations associated with creativity and innovation (Sharman and Johnson, 1997), the creative climate for the management of ideas is defined. It is a much broader concept than R&D management, as ideas are sought from all quarters. Idea management has two sides. One concerns general features of the organization which stimulate or hamper innovation, and the other includes special formal systems and procedures for idea finding and use.

The *climate* has to do with behavior, attitudes and feelings which are fairly easily observed. There are ten main dimensions of a creative climate (Sharman and Johnson, 1997): challenge; freedom; idea support; trust; dynamism; playfulness; debates; conflicts; risk taking; idea time. Therefore the conclusion by the research and analysis came to three points:

1. no idea-handling system can work successfully without a supportive climate in the dimensions just listed;
2. an idea-handling system can make a good climate even better;
3. if the climate is already bad, then an idea-handling system will simply make it worse.

Most companies and organizations are holding workshops or seminars to help and encourage employees to innovate or the think in the innovative way. The following example shows a typical two-day workshop (Goldenberg and Mazursky, 2002).

1. Establishing rapport with the group.
2. Challenging the barriers to creativity.
3. Sharing of problem/issues.
4. Select and the use a creativity technique.
5. Develop a solution.
6. Review the process used.

It is the organizations that are already coping with massive of change that will appreciate the value of this approach to solving problems and developing a more creative climate at work. To further understand the value of innovation, “*RAJiMAR*” would be a better solution (Sharman and Johnson, 1997).

- *R for reversal*. A group of people are at the problem definition stage, at an appropriate moment, suggest a technique known as reversal, in which the problem is turned on its head. e.g. “How to increase the number of complaints about the xyz company!”
- *A for absurdity!* At this point people start to relax, can easily see the humor of the absurdity and start to invent or think up even more silly situations, which then lead into...
- *J for jokes*, or “funny phrases” to sum up the situation. The facilitator now needs to accentuate this feeling or atmosphere by encouraging even funnier works or phrases to sum up the situation, e.g. “large man” or “bar-stool man”.

- *I for incubation.* At this stage it is possible to move on to another topic, go for a walk or break off your activity to do something completely different, thus putting the ideas into everyone's unconscious minds for a period.
- *M for metaphor* - for the absurd, jokey and creative atmosphere previously experienced, e.g. "stirring up a hornet's nest". Sometimes you can have a friendly competition to generate ideas; and a consensus exercise to choose the most appropriate metaphor for the experience.
- *A for Anchor* - those memories of that specific creative climate by briefly taking participants back to the pictures, sounds and feelings, and repeating the key phrase again, e.g. "bar-stool man", etc.
- *R for repeat the metaphor.*
- *R for repeat the sounds again.*
- *R for recall the visual picture.*
- *R for reactivate the feelings.*

Another example (Kelley and Caplan, 1993) is how Bell Labs creates star performers. The authors compared the top performers and average workers to improve professional productivity. By their research, top performers have higher IQs. Or they're better problem solvers, or driven by an enormous will to win. In other words, stars are better people in some fundamental sense, while middle performers lack the inborn traits that are necessary for more than solid plodding. However, the real differences turn up in the strategic ways top performers do their jobs. They concluded an expert model for engineers: taking initiative, networking, self-management, teamwork effectiveness, leadership, followership, perspective, show-and-tell, and organizational savvy.

Managers, by all means, should fully understand the value of innovation and how to manage it. There are different approaches to catch up with the fast pace of the global innovation, however, different managers may find their particular ways of managing. The value of innovation not only helps managers keep their team members' brain alive, but also keeps the whole organization surviving.

3. Case study

The case study is about the identifying successful innovations (Bessant, 2009).

3M is a world-class product innovator. Best known for products like Post-it notes and Scotch tape, they have a history of innovation success in diverse fields: computer disks and tape, industrial coatings and abrasives, medical supplies, and office products. They began in 1901 as the Minnesota Mining and

Manufacturing Corporation - and their first attempts at establishing the business were not successful. But they persisted, and built a business which today sets a goal of getting 30 per cent of its revenues from products introduced in the past three years. They have spent a 100 years refining their approach to innovation - and they continue to succeed in doing so.

How could 3M succeeded by innovation? The history of product and process innovations is littered with examples of apparently food ideas which failed - in some cases with spectacular consequences (Bessant, 2009). Most organizations would own up to having problems with making innovation happen, including a fair proportion of ideas which are never realized, and new initiatives which flop more or less embarrassingly. However, a great deal of research has gone into identifying the key areas on which organizations can focus to promote successful innovation. It might not be possible to guarantee success every time, but paying attention to the key aspects can stack the deck in your favor. Remember, innovation doesn't happen by accident but by careful planning.

How to innovate successfully? There are several factors that identify the success (see Table 1).

Table 1 - Factors in innovation success (Bessant, 2009)

<i>Systematic and organized process:</i> Innovation results from this process of managed change, turning new ideas into reality.
<i>Entrepreneurial skills:</i> These lie at the heart of this process. But although “champions” who are passionate about change can make a lot happen, innovation is a team game, and managing it means involving people from across the organization.
<i>Creativity:</i> This needs to be focused and directed.
<i>Understanding:</i> Managing innovation needs a well-developed understanding of the process.
<i>Planning:</i> It depends on good project planning and management - against a background of uncertainty.
<i>Teamwork:</i> It needs effective project team working - the ability to work with others under uncertain conditions.
<i>Leadership:</i> Innovation needs strategic leadership - having a vision and being able to share it.
<i>Learning skills:</i> Successful innovators have learning skills - the ability to analyze what works and why, and use this knowledge to improve capability for the next time.

4. Suggestion - how to secure innovation

There are four main suggestions for both managers and employees to adopt:

- Going beyond the job
- New ideas and follow-through
- Dealing constructively with criticism
- Planning for the future

But how to secure innovation? Challenges should be met (Bessant, 2009).

Innovation is about adapting to an environment which is always turbulent and often hostile. It is not enough for a manager simply to cope with today's challenges. While for the most part your organization can rely upon established models, radical changes in the business environment do sometimes occur, and innovation is essential to coping with them. It is vital for the innovative manager to consider not only how to innovate when things are going well, but also when they are going badly. Some current factors which have the potential to upset established business models include:

- Climate change
- Sustainability of energy, and waste disposal
- Increase in digital commerce and telecommunications
- Social trends such as an ageing population in western Europe and the US
- Shift in economic power to emerging markets
- The rise of consumerism in developing nations, especially those with large populations

Dealing with the unexpected is part of the innovation challenge - in some ways the most important part, as unexpected challenges can prove life-threatening to an organization. From Henry Ford working on "a car for Everyman", to the IT specialists who moved banking, insurance, and stock trading on-line from paper, or the revolution in the music and entertainment industry caused by internet file sharing, new business models are constantly emerging. And in each case established players were severely damaged because they responded too slowly, leaving the door open for new competitors, some of whom have become today's major players. To combat this, innovation managers should always try to answer the following questions:

- How can we reach at the edge of your organization's radar for problems and opportunities?

- How can we make sure our message gets listened to and acted upon when something important occurs?
- How can we implement innovations that are totally different from anything you have done in the past?

Sometimes the challenges are not easy to notice, so that managers should do enough research to have full understanding of the areas in which proposed innovations could help make the organization both more vulnerable and more resistant to outside challenges.

To better help managers to face the challenges that innovation could bring, a checklist is provided (see Table 2).

Table 2 - Checklist of preparing for challenges (Bessant, 2009)

Does the organization's management create "stretch goals" that provide the direction but not the route for innovation?
Do you actively explore the future, making use of tools and techniques like scenarios and foresight?
Do you have the capacity to challenge your current position - do you think about how your business could be adversely affected?
Do you have strategic decision-making and project selection mechanisms to deal with radical proposals?
Do you have, and make, connections across your industry to provide your organization with fresh perspectives?
Do you have alerting mechanisms to warn you about new trends?

Before talking about the innovation modeling, let's first look at different types of innovation with examples (Bessant, 2009):

- *Radical business model innovation* - Apple's iTunes and iPod systems, which changed the music industry.
- *Radical product innovation* - White LED lighting that led to a shift in energy efficiency.
- *Incremental business model innovation* - Rolls Royce's after sales support that emphasized service and support.
- *Incremental product innovation* - The first flat beds on transatlantic business class airline routes.

- *Incremental process innovation* - NHS Direct in the UK, which began offering health advice over the telephone.
- *Incremental market innovation* - Low-cost single-use shampoo sachets for low-income Indian households.
- *Radical process innovation* - On-line banking and insurance made the delivery of financial services automatic and cheaper.
- *Radical market innovation* - low-cost airlines that made flying available to a whole new market of flyers.

By using resources and energy appropriately, managers should do things better and doing things differently - using the innovation compass and defining the innovation. The compass (radical or incremental) defines the “innovation space” that the organization needs to explore to help move it forward. Different journeys can be taken, not just along the main directions, but in combination (Highsmith, 2010). For example, a new product could be introduced to open up a new market, as Nintendo did with the Wii and the DS, targeting people who had never played computer games before. Or a radical procedure could be applied as McDonald’s did, opening up the fast food market by applying lessons from Henry Ford’s mass production process innovation in car making.

Innovation happens everywhere, but how to keep it initiative and apply it to different areas of the industrial is a tricky thing for managers to work out. Also, how to make that innovation unique - securing the innovation - is a skill that managers must learn.

5. Conclusion

Innovation happens everywhere - business, product, market, or process, etc. From understanding innovation to managing innovation, it would take a while for managers to completely be able to deal with any contingencies and challenges that might happen. Four methods can be used to facilitate innovation as well as secure innovation: *applying strategic analysis; choosing the right options; building a strategic portfolio; promoting ideas for change*. Amongst these, innovation portfolio is highly recommended for managers, who need to know how to build an innovation portfolio. List all the possible innovations; arrange them by impact area: product, service, process, market; score each idea in terms of impact and ease of implementation; plot on a chart with impact and implementation on the two axes; pick out easy to implement and high-impact ideas to work on first; look at other hi-impact ideas that may be harder to implement. The whole might be complicated, but it will benefit managers in the long run.

6. References

- AFUAH, A. 1998. *Innovation Management: Strategies, Implementation, and Profits*, New York, Oxford University Press.
- BESSANT, J. 2009. *Innovation*, London, Dorling Kindersley Limited.
- FREEMAN, C. 1982. *The Economics of Industrial Innovation*, Cambridge, MA, MIT Press.
- GOLDENBERG, J. & MAZURSKY, D. 2002. *Creativity in product innovation*, Cambridge University Press.
- HIGHSMITH, J. 2010. *Agile Project Management - Creating Innovative Products, Second Edition*, Boston, Pearson Education.
- KAFOUROS, M. I. 2008. *Industrial Innovation and Firm Performance - The Impact of Scientific Knowledge on Multinational Corporations*, Northampton, Edward Elgar Publishing, Inc.
- KELLEY, R. & CAPLAN, J. 1993. How Bell Labs creates star performers. *Harvard Business Review*, 71, 128-139.
- ROBERTS, E. B. 1988. What we've learned: Managing invention and innovation. *Research Technology Management*, 31, 11-29.
- SHARMAN, D. & JOHNSON, A. 1997. Innovation in all things! Developing creativity in the workplace. *Industrial and Commercial Training*, 29, 85-87.