

Chapter 2

Understanding Innovation

Innovation has been a subject of scientific research for many years, and you can find a lot of valuable information for use in your effort to streamline the innovation process. In this chapter, we will discuss what innovation is and which mechanisms work in the innovation process. We will concentrate specifically on the type of innovation that takes place in large knowledge-based organizations.

Defining Innovation

Innovation is an exceedingly popular subject. At the time of going to press, googling the word ‘innovation’ produced around 92,100,000 hits. And should the reader try now, chances are the number of hits has increased. Innovation is a very positive term and is particularly popular in business. Often we also see the term used to make discussions, power-points and solutions appear more interesting and visionary.

There are many good definitions of innovation, and there is quite a lot of variation. Some define innovation simply as the process of introducing something new, while to others, innovation must be patentable.

Innovation = The introduction of a new product or service in the market or of a product or service with significantly improved features (OECD)

Innovation = Something new that has a value in the market (The EU Innovation Council)

Innovation = Insight + ideas + impact (?What! The Innovation Company)

Innovation = New and useful (Ours)

Figure 2.1. Definitions of Innovation

According to most definitions, innovation must be new and value-creating. Consequently, innovation is a creative idea that has been implemented. We usually say that innovation is something that is both ‘new and useful’.

The fundamental element of innovation is that it contains something that has never been seen before. Something that has been done in an entirely new way. However, it can be difficult to define exactly how new this ‘something’ must be, which is where the idea of ‘patentability’ comes in. It can either be incremental or radical in nature. Most innovation is incremental, comprising improvements on previous solutions which may not immediately seem pioneering in themselves. Other key dimensions are novelty value in relation to technology, the markets and internal or external conditions. We believe the most important perspective is that of the recipient, because it is generally the recipient, i.e. the customer, who determines whether something is sufficiently novel to make it a true innovation.

One example of an innovation is the Apple iPod, which has taken the world by storm. From a technological point of view, you could argue that the product is not an innovation: it’s ‘just’ a digital walkman. But according to customers, it is an amazing and ingenious product, and that is what makes the iPod an innovation.

Our definition of innovation includes a dimension of ‘usefulness’. The novelty must be useful and, thus, value-creating. This usefulness can be generated in two ways – either by simplifying the solution’s production process or by creating more value for the customer. Here, too, we believe that value must be assessed primarily from the point of view of the recipient. The recipient may be the patient, the user, the customer or anyone else who benefits from the innovation. The central themes of value creation and implementation distinguish creative ideas, new approaches or discoveries from true innovation. New ideas that are not implemented and do not create value are not innovations.

Businesses can benefit from being innovative in more than one area. The most successful businesses have all achieved success by being innovative in one or more of the following four areas:

- Business structures
- Core and support processes
- Products and services
- Supply and distribution set-up

In practice, the innovation process can be made more interesting and successful by widening the focus slightly and by operating with a broader understanding of the concept of innovation. We have seen projects derail because the people involved felt they couldn’t improve on the physical product, and they only got back on track once everyone took a broader approach to innovation.

The Challenge of Innovation

The challenge faced when working with innovation has been put into words nicely by J.C. Jones in his book *Design Methods*:

“The fundamental problem is that designers are obliged to use current information to predict a future state that will not come about unless their predictions are correct. The final outcome of designing has to be assumed before the means of achieving it can be explored: the designers have to work backwards in time from an assumed effect upon the world to the beginning of a chain of events that will bring the effect about.”

Innovation is a very complex challenge, requiring a good imagination and involving many risk elements. Innovation is a learning process that requires a great deal of trial and error.

Creating something new is a process of synthesis in contrast to analysis, which is the process of taking things apart. Synthesis is not just something engineers do when designing new machines or products. Plenty of development work takes place within other professions, such as medicine, law, trade and architecture. The intellectual activity that creates new products is no different to that used when advising a sick patient, drawing up a sales plan or developing a social plan for a local authority.

It is strange that universities provide so little training in synthesis, despite the fact that it is at the heart of many professions. Herbert A. Simon, a scientist famed for his work in artificial intelligence, is quite critical of the educational system. He primarily blames universities for placing more emphasis on the analytical disciplines rather than teaching people how to work with synthesis. Critical analytical thinking and decomposition are considered more worthwhile pursuits than using your know-how and creativity to create something new. We see the results of the teaching practices and attitudes that have been forced on people on practically a daily basis. People may be very good at what they do, and they may be very knowledgeable, but they face huge challenges when called upon to bring this knowledge into play in the process of creating something new. Many would benefit from focusing less on analytical critical thinking and finding weak points in other people's ideas and, instead, view them as a source of inspiration that can be built on.

In the innovation process, there is clearly a need to understand what happens when we work together to create something new. This is true at manager level, where the conditions for the innovation process are set, but also at employee level. The potential for efficiency in the innovation process is not so much that it generates more creative ideas or more individual professional competencies.

Rather, it is because it increases the quality and speed of the processes that produce ideas based on the interaction of many people.

Innovation as a Team Effort

“Enlightened trial and error succeeds over the planning of the lone genius.”

Tom Kelly, IDEO

In the minds of many, the word innovation produces an image of the introverted genius working alone to come up with a radical new solution to a huge problem. But that is a rare situation, indeed.

In innovation discussions, you often hear the story about how Art Fry at 3M was developing a new type of glue that accidentally turned out not to be sticky enough. And presto, he had invented the Post-it. However, most innovations require the coordinated efforts of a lot of people. And you can be sure that 3M used the persevering innovation work of many people to create the business success that the Post-it ultimately became.

Danfoss Drives, a manufacturer of frequency converters, once developed a new product that became a major success for the company. Out of gratitude for their hard work, the management wanted to reward everyone who had contributed to the development of the product with a box of chocolates. They thought they would need about 20 or 30 boxes. Then the project manager began to draw up a list of everyone involved and thus deserving of recognition. This turned out to be harder than they originally thought. Everyone was surprised when the list of people who had contributed to the project from idea to launch grew to more than 100 names.

Both examples show that innovation in large knowledge-based organizations is not about what one person can do, but about what the organization can do based on the coordinated efforts of many dedicated people. To innovate better, you need to understand how these processes work. You need to think about what promotes team learning and what hinders it.

Team Learning and Prioritization

The way we organize ourselves around an innovation project should support the processes that need to take place between the participants so they can make the most of their own and each other's competencies. This may sound simple, but in reality very few manage to create a setting that effectively promotes the

innovation process. The key to a successful innovation environment is understanding which processes to support.

Innovation is a team learning and prioritization process. In order to work with these processes, you need to understand that team learning is based on individual learning. It is possible that two people can have the same experiences and learn in the same way, but the actual act of learning takes place within the individual participant. Thus, team learning is based on the experiences and reflections of the individual.

To transform individual learning into team learning, a process needs to take place in which the individual shares his or her knowledge with the other members of the team. The team can, then, interpret what they have learned, integrate it and raise it to a new level of shared knowledge. To do this, they need to be in regular contact, have discussions and compare their own experiences with those of their team members. This new shared knowledge will subsequently form the foundation for the actions of both the individual and the team. Team learning, thus, comprises three steps:

- Individual learning
- Knowledge-sharing with the team
- Interpretation and integration within the team

The three steps of team learning play an important role in achieving efficient innovation. It is a bad idea for the team to focus too much on individual learning at the expense of knowledge-sharing and the subsequent interpreting process. To achieve team learning, you need to dedicate sufficient time and space in the process. It is not uncommon for project participants to hold too few meetings because they prioritize their own individual learning too highly. They forget that they are not working alone on the project and that they are supposed to be helping each other learn more across disciplines and functions. Value is created by sharing knowledge about the possibilities and limitations and by working together to find new solutions.

Team meetings are often given lower priority because the knowledge-sharing and team learning process is poorly organized. This can result in the general view that the meetings are a waste of time. However, this problem can be solved. If the participants always bear in mind the purpose of their meetings – knowledge-sharing, interpretation and activation – it is possible to organize the meetings better and thus make participation more attractive.

A few years ago, we had an interesting experience working with a biochemical company. A project team under serious time pressure was trying to figure out how they could speed up a research project.

The team comprised highly trained specialists from several different disciplines. Their cooperation was not optimal because they were having a hard time planning meetings, and as specialists they were not used to interdisciplinary project work. The participants had filled their calendars with individual project-related activities that couldn't be rescheduled. When we took a closer look at their calendars, they turned out to be booked with lab experiments, data analyses, meetings with international researchers and conferences all over the world. The team came to the conclusion that the project could be accelerated if they worked together in one room and if they held more frequent status meetings within the team. This would increase focus on the assignment, and thus increase the level of team learning and speed up the process.

It was a good and clear-cut solution, but the participants did not think it was feasible. They claimed there was no tradition for several disciplines working together in one room. Moreover, they believed they lacked the necessary facilities and were concerned that they would not be able to work efficiently on such heavy problems in that kind of environment because of noise and disruptions. Consequently, they decided to stick to the status quo. This is a classic example of how difficult it can be to change firmly established working patterns, to try something new, to be curious and develop new ways of working together rather than only concentrating on one's own specialization – and this actually happened in a development department!

Culture and Physical Environment

"Culture is the software of the mind." Geert Hofstede

The results of an innovation project depend on both the individual and the team performance. To achieve efficient innovation, we need to look at both how the individual works and how the team members work together. The culture that exists within the organization has a significant impact on efficiency. It can both strengthen and impede efficiency – and here we need to remember that there are two dimensions: good solutions and good processes. When we talk about organizational culture, we mean a pattern of shared fundamental assumptions about the correct way to perceive, think and feel. These assumptions form the basis for how managers perceive and perform their managerial responsibilities, and they have a major influence on how employees behave.

You can find out how a specific corporate culture works by answering the following questions: What kind of relationship do you have with customers and other key stakeholders? Is it okay to contact them directly to initiate a dialog,

even when you are uncertain, or would that be considered a sign of weakness? Is the individual employee a responsible, independent person who thinks for him or herself, or is he or she simply expected to obey orders? Is there an interest in development and improvement or does there seem to be a preference for the status quo?

The organizational culture is closely tied to how success is viewed within the organization. What does the management focus on, and what direction do the decisions point in? What is required and considered important? Working consciously with the culture is an important aspect of improving a company's innovation process. But the culture is also one of the hardest things to change. There are, however, other more tangible areas where changes can be more easily made to improve the innovation process:

The organizational and decision-making structure is reflected in the people who have been hired, in how they are grouped together and in how decisions are made within the organization. It is about assignments, responsibilities and staffing, as well as linking strategy, tactics and operational decisions.

The measurement and incentive system comprises the strategies, goals, sub-goals and operational performance targets that have been set. It also covers the incentives and recognition for achieving goals and targets. But the most important element may be what the goals express in terms of ambitions for productivity, readiness and impact.

Processes and methods represents the sum of the processes, methods and tools used in the innovation process. They also include how knowledge is gathered and utilized within the company. Examples of methods and tools are project models, process descriptions, IT tools and lab procedures.

The physical framework is the physical environment viewed in relation to the innovation process.

If the marketing department and the development department are located far from each other, team learning can be difficult. Establishing the right physical conditions means bringing the participants in the innovation process closer together.

Open and Closed Problems

Now, let’s take a closer look at the area of processes and methods, which is key to establishing efficiency and predictability in the innovation process.

Problem-solving is a crucial element in the innovation process. Often, a ‘problem’ is considered negative but in innovation it is neutral. Our definition of a problem is something that arises when a problem solver decides to fulfill a need by finding a solution. There are different types of problems, and whether we have ‘understood’ the problem correctly plays a key role in how efficiently it is solved.

There is a tendency to underestimate problems and to attempt to solve them using methods that are not ideal. This often means doing things that were not originally intended, thus increasing both time and resource consumption. Even though this may all take place at micro level, it can still disrupt the speed, predictability and efficiency of an innovation project. Generally speaking, there are two types of problems: open and closed. Closed problems have only one solution and can often be solved mathematically or logically. Open problems have more than one solution.

Closed problems	Open problems
Jigsaw puzzles	Social development
Accounting	Development product
Measuring distance	New manufacturing process
Quadratic equation	Traffic planning
Taking inventory	Market launch

Figure 2.2. Examples of Closed and Open Problems

If you are dealing with an open problem, but can only see one solution, it is often a good idea to force yourself to find several alternatives before deciding on a specific solution. Otherwise how would you know that you have identified the best solution? One approach is to work on several potential solutions at the same time and then have the ‘solutions’ compete against each other.

Working with alternatives can reduce development time because it speeds up the learning process and gives you something to fall back on if a solution turns out to be unworkable. During the process, however, it can often be difficult to treat alternatives equally. Developers have a tendency to fall in love with one of the potential solutions at too early a stage. Learning to define equivalent potential solutions and treat them all objectively takes practice.

Prioritization and Solution Selection

More than anything else, problem-solving is a question of prioritization and decision-making. Because making such a decision can be a rather complex process, it can be helpful to work with the concept of a 'solution space'. A solution space contains every acceptable solution, and for open problems it will contain several potential solutions. In order to select the most optimum solution, you need to carry out a more detailed evaluation, defining criteria, performing any physical tests and taking account of customers' ideas. That is why developing criteria for the solution in the form of requirements and wishes is an integral part of the problem-solving and innovation process.

Visualization

Visualization is a highly effective and necessary part of any problem-solving process. In fact, describing an idea in words, in a drawing or in an illustration helps increase the problem-solver's intelligence. Visualization also improves communication, both internally within the innovation team and externally. Communication in writing and drawings is part of the problem-solver's tool-box. In some cases, it can be helpful to speak in images or develop a special language for use during the problem-solving process. The design firm IDEO gives an example from a project they worked on with a toothpaste manufacturer. The assignment was to develop a new type of packaging, and the project team ended up developing an entirely new language about toothpaste during the problem-solving process to help them verbalize how the toothpaste flowed out of the tube and how it felt to squeeze the tube.

Wicked Problems

A special type of open problem is 'wicked' problems, which are the most complex of all problems. Wicked problems were first described in connection with social planning and they are characterized by the fact that they change constantly. Just when you think you have found a solution and you begin to implement it, you impact the situation, it changes and you have to start over.

Take, for example, a problem from the world of traffic planning: how to increase the capacity of a specific stretch of freeway. This can be done by adding more lanes. However, that makes it more attractive for people to travel by car, thus causing an increase in traffic volume. And that increase ultimately leads to more complaints about noise, increased congestion on the on and off-ramps and parking problems. So, while the original problem is solved, the solution creates

a series of new problems. Similarly complex problems are often seen within politics and legislation.

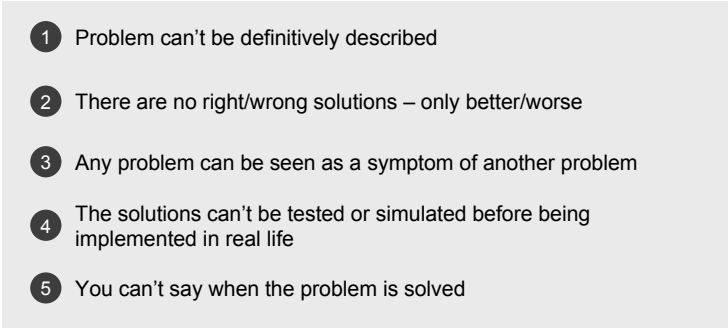
- 
- 1 Problem can't be definitively described
 - 2 There are no right/wrong solutions – only better/worse
 - 3 Any problem can be seen as a symptom of another problem
 - 4 The solutions can't be tested or simulated before being implemented in real life
 - 5 You can't say when the problem is solved

Figure 2.3. Five Characteristics of Wicked Problems

We have introduced the theory of wicked problems here because such complex problems represent an extreme in the world of problem-solving. We often see people trying to solve problems using methods that are too simple. The problem-solving methods for wicked problems can serve as inspiration for the efficient solution of other complex problems, thus, helping increase predictability in the problem-solving process. To increase the efficiency of the process of solving complex problems, it is important to bear the following in mind:

1. No single individual possesses the knowledge needed to solve the problem. And the biggest experts are most often the prospective users of the solution.
2. No one wants to be subjected to other people's plans without being involved in the process.
3. Decisions are not based only on professional expertise. They are often also political, moral or ethical in nature.
4. The problem-solver's role is to facilitate the process rather than propose solutions.
5. You can not predict all possible consequences of a solution – any potential solution is a journey involving an unknown number of risks along the way.

Looking at how to deal with wicked problems can be very inspiring in the innovation process. For instance, you can involve the customers in the development process to let them know that you understand that their needs may change once they see the solution. You can also view your role as that of a facilitator who promotes the solution of complex problems through a negotiation-oriented process.

Many inexperienced project managers have a tendency to take too simplistic a view of problems. They do not see their complexity, and end up selecting a problem-solving process that is too simple, thus causing delays and turbulence. But not all problems are complex, and applying problem-solving methods for wicked problems to simple problems can prove a wasteful approach. That is why it is important to develop the skills and experience to be able to evaluate problems correctly and to alternate between different problem-solving methods as needed.

Structure of the Innovation Process

The following figure illustrates an innovation process organized in the form of a project comprising a series of processes, each of which consists of different working methods.

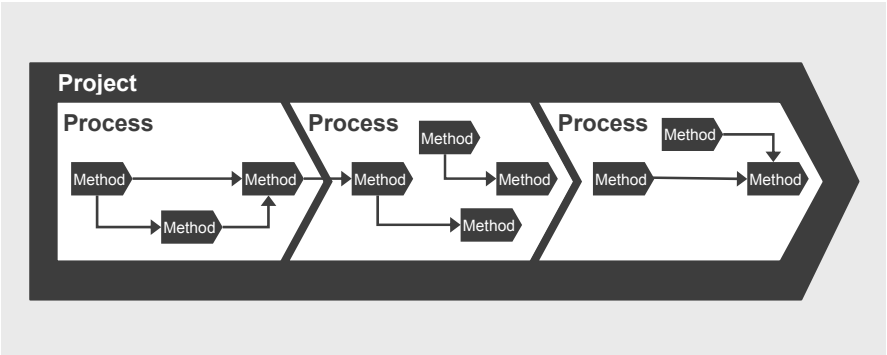


Figure 2.4. The Innovation Process

If you want to work efficiently, it is important to constantly question the processes and methods used in projects. They need to be developed and optimized, and it is a good idea to collect helpful process elements for use in connection with future innovation projects. In much the same way as a handyman is equipped with a toolbox, the knowledge worker should also have newly sharpened and well-maintained tools in his or her box.

Innovation with Extreme Concepts

Now we would like to present an innovation process from our toolbox. This process is intended for use in the early phases of a project to generate a large number of ideas and establish a stable foundation for the later phases. The

process spans from idea, through alternative concepts, to a final realistic solution. We call the process Innovation with Extreme Concepts.

To illustrate the process, let's look at an example from a hospital where the management initiated a project to improve the service level in the hospital emergency room. There had been a negative atmosphere among the ER staff for some time. In addition, the management had been repeatedly confronted by stories from patients and politicians about the low quality of the service, so they decided to launch a project to design the 'ER of the Future'.

To carry out the project, an interdisciplinary team was appointed, comprising a wide range of professional competencies. Initially, the assignment was to present two or three alternative solutions for how to improve the ER.

The project team followed the process illustrated in Figure 2.5. The model comprises three phases, with the first phase – the 'needs and ideas phase' – consisting of gathering information about user needs. The first phase produces three significant results:

- An understanding of the problem
- Requirements and wishes for the solution
- A collection of initial ideas

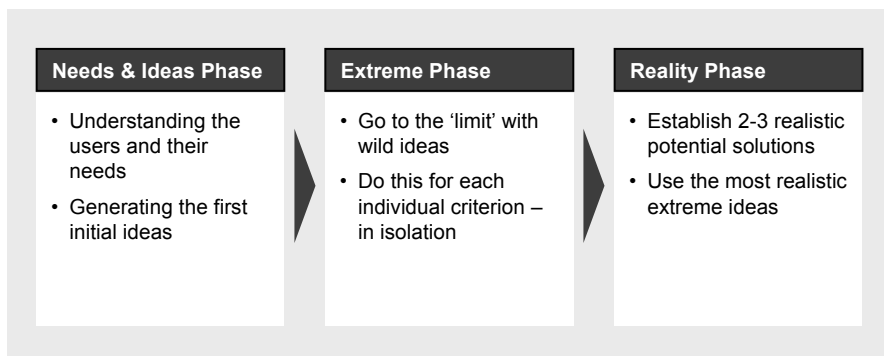


Figure 2.5. Problem-solving with Extreme Concepts

The project team identified the stakeholders and visited the ER to talk to staff and patients. The policy-makers visited the hospital, and the legislation was reviewed. During the visit to the ER, photos were taken and videos were made. The staff collected quantitative data and participated in focus groups to talk about the current strengths and possibilities. While all this information was being gathered, ideas for how the ER could be improved were captured on an ongoing basis. They might be little ideas based on an individual patient's experience

or ideas the staff had been talking about for a long time. The project team collected and documented these ideas. At the same time, the project team analyzed the interviews and drew conclusions based on the stakeholders' requirements and wishes. They were added to a list which was regularly questioned and re-evaluated.

The next phase was the 'extreme phase'. The most significant outcome of this phase was generating a number of 'wild' ideas and listing solutions that were optimized to comply with only a single criterion. This phase was used to generate as many ideas as possible without worrying about the fact that the final solution needed to comply with a whole set of criteria. The project team, then, combined the ideas into a number of complete solutions.

In the ER example, the project team finally decided on four extreme criteria for a solution: high level of medical expertise, good care, short waiting times and low price. The project team conducted a workshop with the ER staff, where 'wild' ideas were generated for each criterion without considering the other criteria. For example, the team came up with the following extreme ideas for the high level of medical expertise criterion: fly in leading experts for every single treatment; set up video conference facilities in the operating room to obtain fast second opinions; and establish permanent treatment teams that train difficult situations in a simulator. Obviously, these ideas were unrealistic in their current form, but they helped widen the range of possible solutions. This made way for creativity and for exploring the different possible solutions. In innovation, there is a fine line between an ingenious solution and a crazy solution.

The final phase was the 'reality phase'. In this phase, work continued on the ideas from the previous two phases, only they were adjusted to meet a realistic and balanced set of criteria. This means dropping some of the 'wild' ideas and replacing them with more feasible ones. This phase will typically produce one to three final solution proposals which will then form the basis for selecting the final solution.

In the ER example, the team proposed addressing 'lack of medical expertise' by compiling a phone list of leading experts, introducing telemedicine facilities and training in permanent teams.

Analysis of 'Innovation with Extreme Concepts'

The example above is an excellent illustration of how an innovation project can be designed to integrate many useful elements in an efficient innovation process. In the following, we will pull out and describe the elements which have consciously been built into the process to increase the degree of innovation and realism of the final solution.

An understanding of user needs is obtained in a simple manner through personal observation and by visiting the ER to speak with people who are affected by the problem. Problem-solvers often tend to base their solutions only on information received from others, and it's not uncommon to find more than three links between those with the need and the problem-solver.

Knowledge and ideas are gathered continuously, not only at the end. During the initial visits, the team collects user ideas, which form the basis for preliminary outlines of ideas. It is important to establish an interaction between analysis and synthesis throughout the innovation process. If, at the end of the process, all you have is a lot of raw data, it can be nearly impossible to draw conclusions and create a final solution.

The best way to solve big problems is to break them down into smaller problems. By breaking down 'Good patient service' into the four sub-problems of medical expertise, care, waiting times and price, the task becomes more manageable.

Structure helps heighten creativity. It is very difficult to come up with good ideas without constraints, and it can be stimulating to take a simple problem or a single criterion as a point of departure. Within every criterion, there is room in the extreme phase of the process for crazy ideas and for experimentation. When working in a team, it can be a good idea to agree on when creativity should be let loose and when it should be limited. We find that the system works best if creativity is allowed to flow freely during the first of the three phases in the process. By that time, the work should have progressed far enough to provide a good understanding of the problem, but there should also still be time before specific solutions need to be presented.

The team works actively to interpret requirements and wishes. In the example, we see that requirements and wishes are formulated during the first phase. It makes sense to define the criteria for a solution before developing it, as this gives the work a common direction. However, this is also a somewhat idealized scenario, as the tests carried out and the accumulated knowledge and experiences gained throughout the process continuously influence the requirements and wishes. The team therefore needs to be able to work actively with the requirements and wishes not only at the beginning but throughout the process.

Prototyping solutions quickly provides useful insights. In the reality phase, the team tested several solutions by discussing them with nurses and other stakeholders. During a development process, it is important to find out what happens when ideas meet reality. This is because of the nature of open problems and the need for user response, but also because prototyping helps the developer visualize the real-life situation where the solution must work.

Planning and implementing prototypes and simulations can be quite resource-demanding, and we often see prototyping that is incomplete or carried out too late in the process. One reason for this is that the project team can be so focused on developing and presenting the complete solution that they simply do not have the time or energy to test ideas. Testing can start to feel like a disruption to the creative process. And because there is a tendency to allocate insufficient time to the first part of the project, the knowledge-generating prototyping process is often dropped to save time. However, this can have the unfortunate result of the untested solution being introduced only to be immediately recalled for improvements. The resource savings in the project's early phase are ultimately lost in a lengthy implementation phase characterized by re-work, delays and frustrations.

Another typical situation is that neither time nor resources are allocated to incorporating the improvement ideas that result from testing. This can be a deeply frustrating situation and can demotivate an entire project team. It is therefore a good idea to assume that it will be necessary to make changes after a round of tests and to include sufficient time and resources for this purpose in the project plan. The whole purpose of prototyping is to find out how the product can be improved. It is thus something of a paradox that time is not allocated to making these improvements.

Management of Innovation Processes

The ER example provides some insight into the situation of the developer. We have shown how the process proceeds in a structured way from needs, through specification to solution and testing, with the constant acquisition of new knowledge along the way. A problem can be broken down into smaller pieces, which can then be put back together and evaluated to reveal the consequences of implementing the new solution.

This process increases the understanding of user needs, the various potential solutions and how they influence each other. That understanding provides a basis for creative idea generation. Innovation tends to be associated primarily with creativity, even though that is not actually the most important part of the process. We have chosen to call innovation a process of prioritization as well because the ability to prioritize among different options is crucial. When working with open problems, there isn't enough time to test every option, so the ability to prioritize and be selective is an important part of the process. This takes both wisdom and intuition, and there must be room for opinions and interpretations. Development is not an exact science.

Parts of the innovation process are unstructured and unpredictable. This is a consequence of the complex learning process that takes place. It is vital that the project team understands and accepts the heuristic nature of the learning process, however it must not become a virtue in itself. Loose and uncontrolled activities can have a negative impact on the learning process. Learning in connection with open problems is a never-ending process. So the key is to develop a sense for when to make room for the unforeseen and when to impose more structure.

People who are not involved in the development process are often surprised by what takes place. How can it be so hard to manage? They may have proper cause for their wonder, as very few are able to consciously manage learning processes in the development area. However, anyone not involved also needs to understand that development is hard work and that problem-solving is a learning process which cannot be planned in detail.

The Personal Perspective

In the process of streamlining innovation, it is important to understand what it means to create something new. Consequently, personal experience with innovation is an important qualification. Innovation work brings out powerful feelings. Most people who have worked with innovation have felt the vulnerability that comes with presenting the solution they have worked hard on for so long.

Imagine spending a major part of your professional life becoming an expert in a specific field. You have studied for five or seven years at the university, perhaps, and then worked for ten years or more in a given field. You know the field inside and out, you know the literature, you know the professional environment. You have been presented with a problem which you have tried to solve, either alone or in collaboration with others. You know what works, and you have even played the role of reviewer on several occasions. You have been asked to come up with a solution to a problem and have worked with the problem constructively. You present the best solution you can come up with.

You make your statement for everyone to consider and criticize. Your self-image, your professional reputation, everything you have worked so hard to build up is put on display to be evaluated and criticized from every angle. You know the trade-offs that have been made and the limitations that have led to the solution. But the recipients don't know any of this, and now they and others are evaluating your work. This is an extremely vulnerable situation. Anyone who wants to reach you, needs to understand the situation you are in. They need to

have been there or to have a very good understanding of the courage and vulnerability you are showing at this moment.

How the knowledge worker responds in this situation is, of course, individual. But it is much more difficult to create something new than to criticize something someone else has created. We would therefore like to take this opportunity to encourage everyone to show the greatest possible respect to those who dare to stick their necks out and put themselves on the line to bring something new into the world.

Literature:

- Argyris, Chris: "Teaching Smart People How to Learn." *Harvard Business Review*, 2000.
- Christensen, Clayton M.: *The Innovators Dilemma – When New Technologies Cause Great Firms to Fail*. Harvard Business School Publishing, 1997.
- Christensen, Clayton M.: *Disrupting Class. How Disruptive Innovation Will Change the Way the World Learns*. McGraw Hill, 2008.
- Doblin: "Ten Types of Innovation," <http://www.doblin.com/AboutInno/innotypes.html>
- Jones, John Chris: *Design Methods*. Wiley & Sons. New York, 1970.
- "Managing Google's Idea Factory". *Businessweek*, October 3, 2005.
- Mayer, Marissa: "Google's Nine Points of Innovation." Google, 2007.
- McKim, R. H.: *Experiences in Visual Thinking*. PWS Publishers, 1972.
- Papanek, Victor: *Design for the Real World – Human Ecology and Social Change*. Academy Chicago Publishers, 1971.
- Rittel, Horst & Melvin Webber: *Dilemmas in a General Theory of Planning*. Elsevier Scientific Publishing. Amsterdam.
- Simon, Herbert A.: *Sciences of the Artificial*. MIT Press; 3rd edition, October 1, 1996.
- ?WHATIF!: *Sticky Wisdom*. John Wiley & Sons, 2004.



<http://www.springer.com/978-3-642-15894-0>

Lean Innovation

A Fast Path from Knowledge to Value

Sehested, C.; Sonnenberg, H.

2011, X, 189 p., Hardcover

ISBN: 978-3-642-15894-0