Module 3

Managing innovation: Concepts, Processes, Tools and Techniques

Introduction

This module is an introduction to the basics of innovation and the innovation methods. Concepts such as invention, innovation, creativity and its process, knowledge exploration and exploitation, and the relationship between innovation and entrepreneurship will be discussed in this module.

Module Outline

- Basic concepts and Processes of innovation
- Relationship between innovation and Entrepreneurship
- Entrepreneurship as a creative process

Module Duration

This Study Session requires a 48 hours of formal study time.

You may spend an additional 2-3 hours for revision

Learning Outcomes of Module 3

Upon completion of this study unit, you should be able to:

3.1 Managing Innovations: Concepts, Processes, Tools and Techniques

3.2 Describe Entrepreneurship as a creative process.

Terminologies

Invention	The creation of something new.
Innovation	The transformation of an idea into a useful application

3.1 Managing Innovations: Concepts, Processes, Tools and Techniques

Every disciple has its own unique concepts, tools, techniques and terminologies. Similarly, managing innovations has its own peculiar concepts, processes, tools and techniques. This study unit will, therefore, introduces you with the basic notions, practices, methods and terminologies of innovation management.

3.1.1 Basic Concepts, Sources and Processes of Innovation

Innovation is bringing something new just like invention. However, invention does not mean innovation. An invention is the creation of something new that we come up in our laboratory or piece of sheet which results in new knowledge. Whereas innovation depends on our actions. Inventions become innovations when they are exploited which means when the innovation is put to use to create economic and social values through new products, service or processes. Innovation advances quality improvement, as in this case the product or service receives new attributes, determining a differential up to a point of becoming a product or service perceived differently. Innovation can also establish new possibilities of use for the same product, thus creating new marketing possibilities. Real innovation happens when you can add new attributes or characteristics to a product improving it without negatively affecting production cost and time. The following figure summarizes a comparison between invention and innovation.

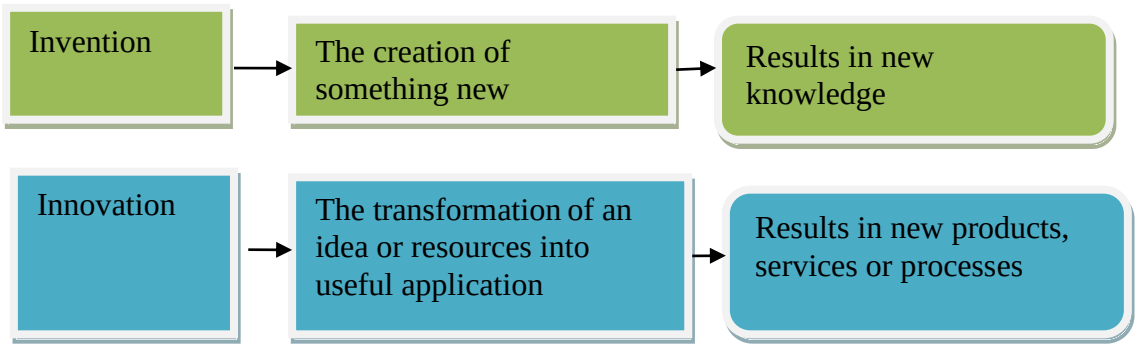


Figure 1 Invention versus innovation

In our contemporary World, innovation matters most both at individual and national level. Most of the economic growth that has occurred since the eighteenth century is attributable to innovation. Organizations which can mobilize knowledge, technological skills and experience to create novelty in their offerings and the ways in which they create and deliver those offerings

enjoy competitive advantage over their competitors. Enterprises that do not invest in innovation fall behind because their products and services becomes obsolete in the long run. The business of such companies is less likely to prosper in the future as they will likely be outsmarted by competitors that apply innovative solutions to emerging problems.

3.1.2 Creativity and Knowledge

Innovation is closely linked with creativity and knowledge. Creativity drives innovation but all creative ideas cannot be innovation. As we discussed in the previous paragraph innovation includes the exploitation part. Furthermore, knowledge is the basis for creativity and innovation. However, while managing innovations we need to consider that knowledge constantly expands and it has to be accessed and leveraged. To do so, you need to be able to understand, evaluate, and assimilate knowledge. This is called absorptive capacity. When we talk about knowledge base for innovation in an organization, we come up with the terms of exploration and exploitation. Exploration is about increasing the knowledge base of an organization. It is about searching for and building new knowledge. Exploitation, on the other hand, is leveraging on the existing knowledge embedded in an organization and its employees is exploited. Organizations which are exploring knowledge too much risk to fail to put the knowledge to use while organizations which are only relying on their existing knowledge risk to fall behind. Thus, organizations are required to balance their exploration and exploitation efforts.

3.1.3 Types of Innovations

Usually innovation is considered as a product innovation followed by process innovation. The difference is that a product innovation is what we see when we look at final product and the process innovation is about a new way to come up with the new product. In addition, there are also service innovations, for example, the introduction of online banking and ATM machine. Besides, we often see product and process innovation that are combined in a service innovation. Further, there are innovations in organizational structures. Recently, organizational innovations are associated with business model innovation. A business model illustrates the money earning logic of a firm and this is very important type of innovation. In general, the main point is that innovation is not only a new product and many of the most successful innovations are actually service or business model innovations.

It is important to keep in mind that there are not only different types but also different degrees of innovations. The terms most used in this regard are radical and incremental innovations. Think about Sony's walkman, a radical product innovation that changed how we listen to music. At the same time, incremental innovations refer to modifications to existing products or processes usually with the aim of creating a better product or experience without major changes in the output. Some innovations fundamentally change the rules of the game. There are different degrees of novelty and radical innovations are often defined as those innovations that are not only based on new means for example new technology but also new markets, for example new uses. Organizations usually rely on the mix of types of innovations related to the degree of novelty. Radical innovations tend to take more time and involve high risks but at the same time they provide high returns when successful. Incremental innovations are less risky and a company which focuses on incremental innovation is likely to fall behind in the long run.

3.1.4 Diffusion of Innovation

Innovation diffusion is the process through which innovations spread among users once a new product or service is released into a market. The most known model is the technology adoption life-cycle model which assumes a valley shape curve with the minority of innovators and early adopters in the early life at the left side and minority of laggards in the right side and the early majority and late majority in the center. This process curve influences strategic decisions such as how organizations design product life cycles, when they advertize and how and when they introduce product updates.

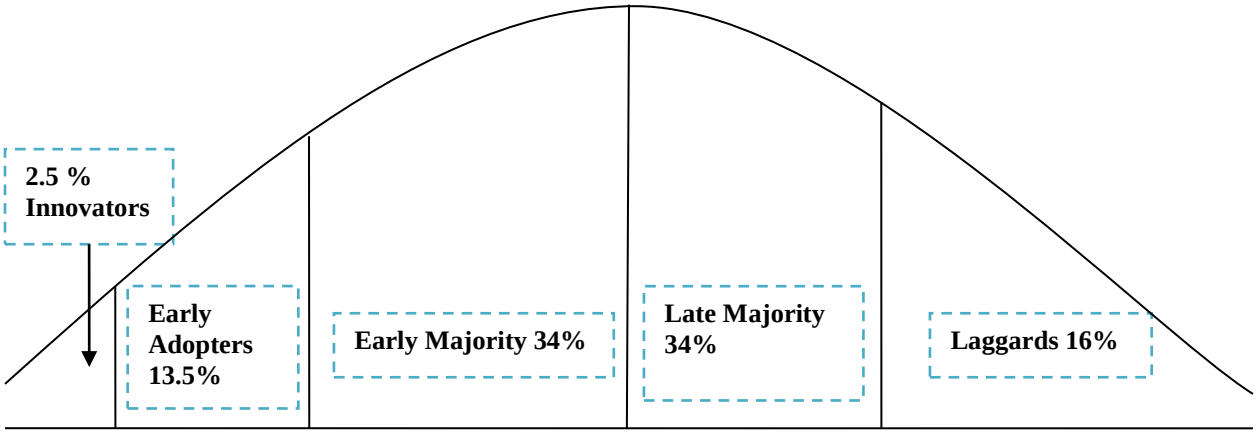


Figure 2 Rogers R: Technology Adoption Lifecycle Model

3.1.5 Sources of Innovation

The two traditional sources of innovation are the company's R&D labs and market research. If we take the entrepreneurs perspective, the traditional perspective is that new start ups are based on invention and changes which is very much dependent on insights and special discovery skills of the entrepreneur. Around the 1950s, innovation was seen as a linear process following a science push. The linear model assumes that innovation begins with the internal R&D where you come up with a solution and then you design and engineer the solution, manufacture it, market it and you sell it.

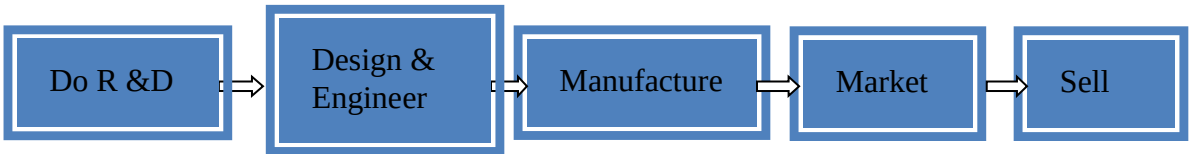


Figure 3 Linear Model part I: Science Push (around 1950s)

Around the 1970s a second model became very popular: the demand pull model. It includes the realization that innovation is also demand driven. The process starts with market needs assessment, the design of a market survey, then doing a research and development based on the survey results, manufacture and sell it.

Figure 4 Linear Model part II: Demand Pull (around 1970s)

Both processes assume linearity like a one-way street. Linear models have shaped our understanding of the sources of innovation. However, over the past three decades, research efforts on innovation and entrepreneurship started to change these traditions and assumptions. It has been observed that since the 1990s, there has been a continuous shift from the linear innovation process models to systems of innovation in which innovation is seen as an interactive nonlinear process occurring in systems. Second, there has also been a shift from sole focus on opportunity discovery to opportunity creation and scholars see entrepreneurship as a creative process which involves discovery but also creating opportunity.

3.1.6 Systems of Innovation

Let's have a look at the systems of innovation approach. In this approach, innovation is seen as an iterative, non-linear process which occurs in system of innovations between actors, notably firms, research institutions, government organization, private non-profit and, individuals such as

employees, inventors, customers or entrepreneurs. Actors in the system can directly collaborate with each other but may also indirectly influence each other. Interaction in the systems are characterized by feedbacks, reciprocity and learning. Furthermore, interactions are influenced by formal and informal institutions; for example, the laws and regulations of intellectual property rights as well as the organizational culture that might foster or impede creativity.

Two research streams and movements have emerged out of the systems innovation paradigm. The first is open innovation which considers that in a systems approach companies cannot afford to entirely rely on their internal knowledge. They can and should use ideas and technologies from external sources for their own business. At the same time, they should allow internal ideas to flow out to be used by other businesses. The second research stream and movement is democratizing innovation. According to this stream people participate in the development of products they use and companies need to integrate users into innovation process.

3.2 Entrepreneurship as a creative process

There is a paradigm shift in entrepreneurship process models. First, the search and select paradigm which assumes that opportunities are out there just waiting to be found by skillful entrepreneurs. Second, the create and transform paradigm assumes that entrepreneurs create opportunities based on what they have and then transform them. The main message is that opportunities are always based on an idea plus action. So, whether you find an idea out there or already you create something based on what you have; it is about taking an action. Either way let's have a look at these two different process models in more detail.

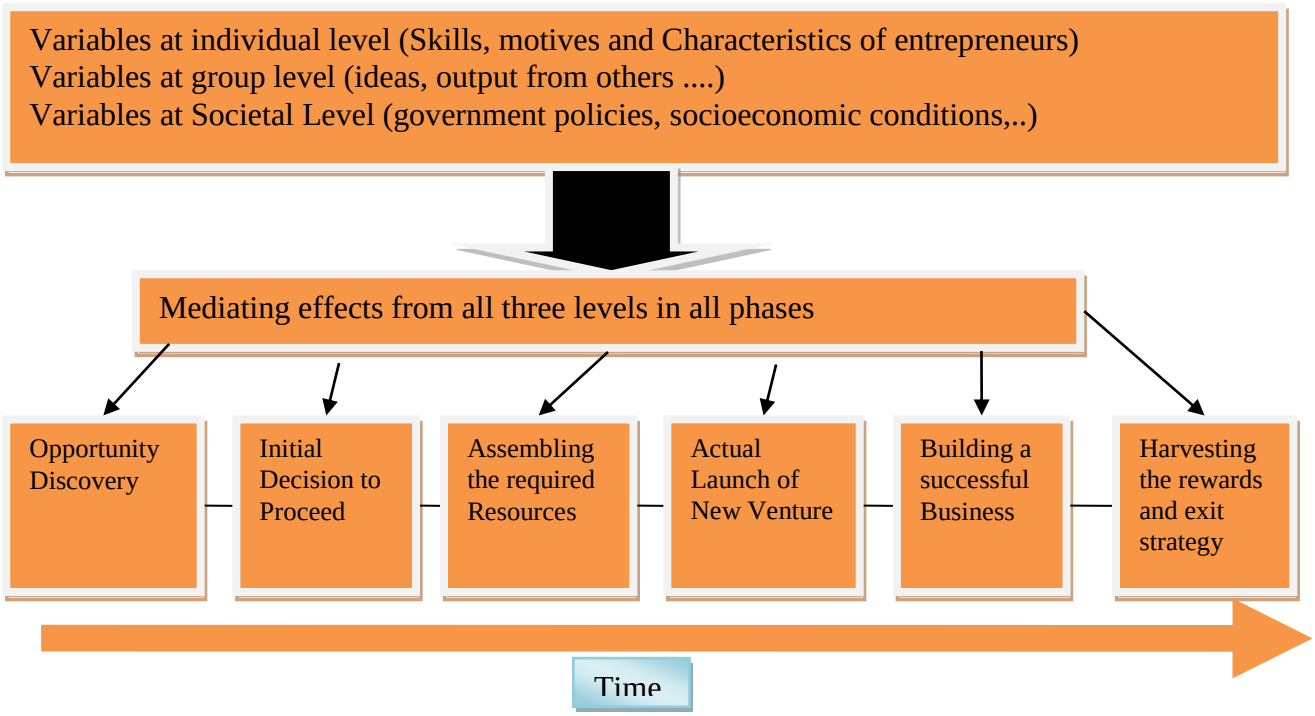
3.2.1 Entrepreneurship as a process: Search and Select

From this perspective, the first step is opportunity discovery. The next step in the process of entrepreneurship process is the initial decision to proceed which means evaluating your idea. Before you go on, you need to find out if your idea makes a good business sense. You can do this by conducting a careful feasibility analysis that includes information about the feasibility of the product: is it going to work? who is going to buy it? who are the existing and potential competitors? how much am I going to sell? do we have the knowledge and skills to launch and run the business? what kind of policies and regulations might affect the idea and the initial financial resources and see if the venture can be profitable.

Let's say you have conducted the feasibility study and the idea makes good sense. The next logical step is assembling the required resources. You already know much about what you need

from the feasibility analysis and usually this is the time to set up a detailed business plan where you specify how much money you are going to need, how you are going to produce the product or deliver the service, what kind of physical resources and assets you will buy and what kind of people are you going to hire, and of course how much money are you going to make over the next couple of years.

Assuming that everything up to now runs smoothly and you get the funding, the next step is actually launching the new venture. At this point, decisions about the specific legal form have been made and legal issue have been sorted out. Depending on your industry and legal form you have also thought about disclosure agreements, founding agreements and contract laws. This is how the entrepreneurial process ends. In fact, the trickiest part is yet to come. It is about building a successful business. This includes financial planning, market planning and strategic planning. This process does not happen on a vacuum rather it is shaped by variables on three different levels namely individual, group and macro levels. On the level of the individual, it includes the skills, motives and characteristics of entrepreneurs. On the group level, it involves the ideas, inputs from others; effectiveness in interactions with venture capitalists, customers and potential employees. On the macro or societal level variables include the government policies, socio-economic conditions and technological development that influence the process. In short, we have a mediating effect from these variables on all three levels on the process. However, despite this mediating variables the process is essentially linear in nature. It is going step by step.



3.2.2 Entrepreneurship Process: Create and Transform

Now let's have a look as the entrepreneurship process from the create and transform perspective. In this perspective, the process starts from the means available that is who I am, whom I know and what I know. Next entrepreneurs look at what they can do with this means and follow possible goal and courses of action. In doing so, they will interact with people they know and they will try to get a stakeholder commitment. If they succeed, stakeholders will bring new means on board which will change the means available. At the same time, however, new stakeholders will also bring new goal on board that may change the initial goals and processes the entrepreneur started from. In the long run, a new market product or firm then results from an 'expanding cycle of resources' and the 'converging cycle of transformations'. In doing so, this view is fundamentally different from the linear approach which we have look it before. This process is iterative and the final outcome is unknown at the beginning.

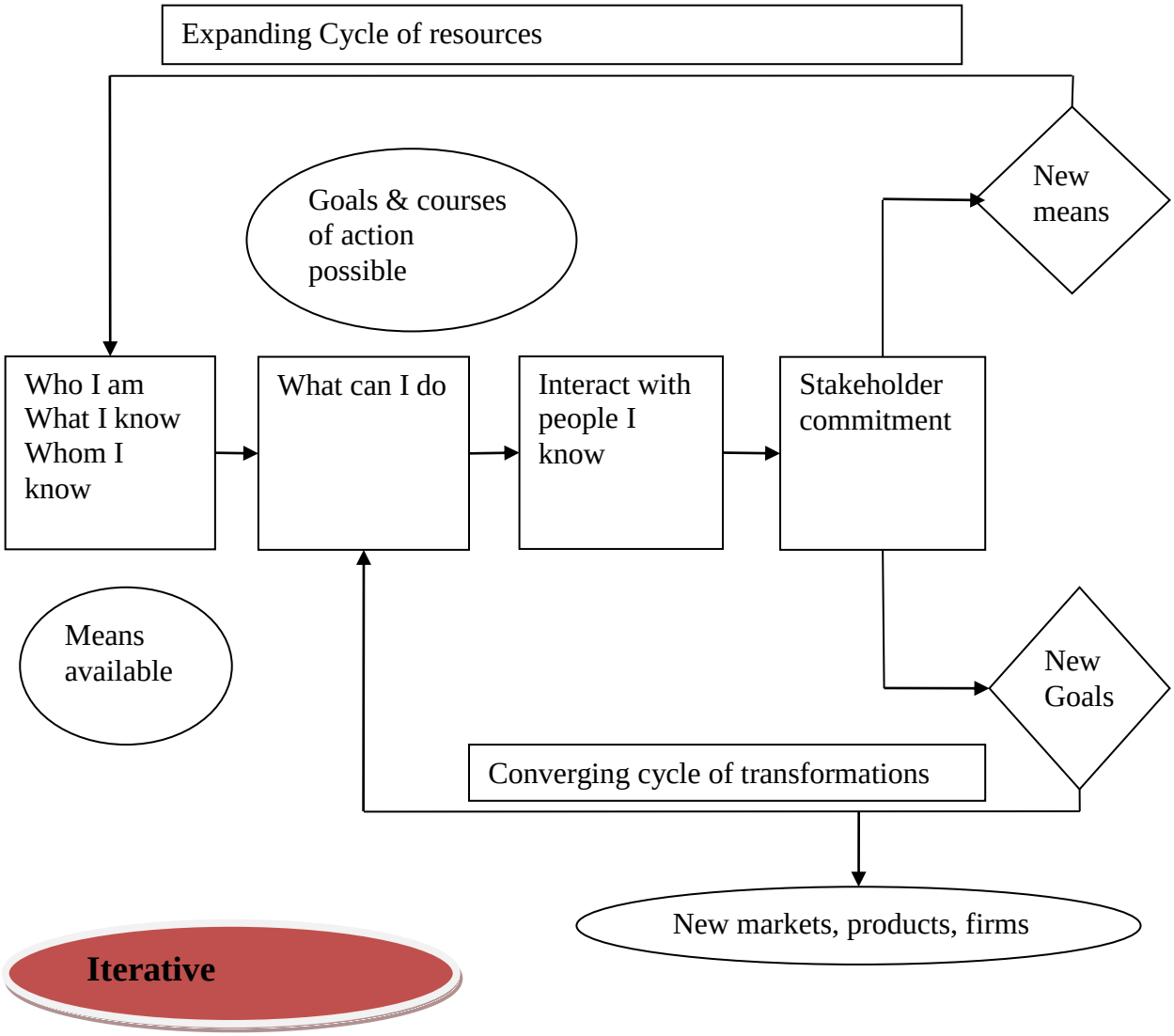


Figure 5 Modified from Sarasvathy, 2008

Review Questions

1. Compare and contrast invention and innovation?
2. Describe the concepts of knowledge exploration and exploitation? How these concepts are related to creativity?
3. What are the different types and degrees of innovation?
4. Briefly describe the two entrepreneurship process models?

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