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Economics and management of innovation simple (for real)

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# Course introduction

The course will be focused on innovation, ecosystems innovation and different sources/types, firm strategies/competition and case studies.

Innovation as a concept is the perception of something different given to customers and people, having a competitive advantage over old ideas and marking a difference for customers and their relationships. This is made creating products and services, targeting customers overtime and helping the existing ones.

(Notes not for exam) The City Vision event (present in the course schedule) is important, can give bonus points if one is there. It’s present on the end of Moodle in the “Events” section. If one manages to be present at least 1.5 h. into the City Vision event, one can get 1 point for the exam. Remember to sign before entering and signing before going out. Link to the event: <https://city-vision.it/evento/city-vision-2023/>

Key points about inquiring with startups:

1. Founding team
2. Where did the idea come from
3. Main obstacles
4. Main facilitators

About the exam:

**FOR ATTENDING STUDENTS**

The final exam consists of two parts.

1. The first part consists of a written test which includes 3 open questions on the content of the textbook. Each question will be evaluated with a maximum of 8 points.

2. The second part includes one group-work ppt presentation of 8-10 slides (evaluated with a maximum of 8 points). The presentation of the teamwork (composed of possibly 5 students) is made by companies.

Details on point 2 are available on the Moodle Platform in due course.

**FOR NON-ATTENDING STUDENTS**

The final exam consists of a written test which includes 4 open questions on the content of the textbook. Each question will be evaluated with a maximum of 8 points.

To form a group, there is a “Build your team” link.

Innovation in general can be considered synonymous with technology, future, progress and improvement.

# Chapter 1 – Introduction

The innovation is a key factor in driving competing success, where enabling rapidly a new design, short production times, lifecycles, segmenting the market towards niches, allows impactful change and news all over the world. Many innovation help industries differentiate themselves.

Advances in information technology have enabled faster innovation, enabling rapid design and shorter production. Innovation and advances in information lead to shorter product lifecycles, creating more rapid new product introductions and having greater market segmentation. This enables a wider range of goods and services to be delivered to people worldwide.

Successful innovation requires specific strategies and implementation processes, creating an *innovation funnel*, a pipeline starting from the idea generation, then accompanying the screening idea, concept development, testing, analysis and commercialization. Specifically:

1. Foundations of technological innovation
   1. Sources of innovation (internal/external)
   2. Types and patterns of innovation (product/process/business model)
   3. Battles to assert industry dominance
   4. Timing of entry in the market
2. Formulating Technological Innovation Strategy (part 1)
   1. Define the mission core, the overall vision and the strategic intent to reach
   2. Choosing innovation projects, a portfolio of new ones, studying risks and decision-making stages
   3. Collaboration strategies, between partners of various kinds and alliances
   4. Protecting innovation competitively, having defensive strategies and creating patents
3. Formulating Technological Innovation Strategy (part 2)
   1. Create dedicated innovation structures to support innovation
   2. Fostering a innovation culture, promoting cross-functional collaboration
   3. Manage the product development, allocating resources accordingly, creating good teams, maintaining leadership and motivation
   4. Crafting a development strategy, carefully planning the enter in the market of services and products, while generating overall brand-awareness

Some natural questions that we may ask ourselves are (coming from the slide, I try to give my take giving just a few keywords, helping the overall discussion):

1. Why is innovation so important for firms to compete in many industries?
   1. It plays a crucial role, whereas the market differentiates, allowing efficiency in costs, adapting to changes, having a long-term sustainability, new growth in revenue and attracting talents
2. What are some of the advantages of technological innovation? Disadvantages?
   1. We may have as drawbacks high costs, fast obsolescence, security and ethical concerns depending on the context and workforce disruption
3. Why do you think so many innovation projects fail to generate an economic return?
   1. Many reasons, like the poor execution, lack of market fit in time and needs, resistance to change or understanding the overall market, being constrained in financial and competitive factors.

The source of innovation arises both from the company/industry vision and from the individuals themselves, which determine how a dominant design will be selected above others.

# Chapter 2 – Sources of innovation

The development of cultured meat, also known as "clean meat," is a clear example of innovation stemming from both internal and external sources in the food industry, introducing entirely new ways of producing meat without traditional methods.

Jason Matheny founded New Harvest, an organization dedicated to promoting research in this field. Collaborations with Dutch scientists and the government highlight external sources of innovation, having a clear understanding of the environmental problem and posing itself as a new solution to this overall issue and challenge, using very few calories and having new startups bringing this problem to the overall attention.

This overall is a sustainable choice, ethically good and healthy for the market, while at the same being technologically complex and expensive to both produce and have the market accepting it. Even here, market creates links between corporations, organizations and institutions, to create a good perception of both laws, market companies’ vision and people buying alike.

Innovation can arise from many different sources and the linkages between them is strong, central and decentralized at the same time.

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Descrizione generata automaticamente

It’s interesting to analyze creativity as the ability to produce useful, novel work based on personal development and knowledge in a specific environment, but not only that (having a mix of knowledge and culture to create new ideas overtime, both with personality and motivation).

We might manage to categorize organizational creativity as creativity of individuals within the organization, crafting new social processes that help shape new forms of interactions and trainings, encouraging creativity in action (Google for example, encouraging spending time to think new ideas).

Innovating means then implementing creative ideas into new devices or processes, taking for example *inventors*, people who essentially mastered the basic tools and operations of specific fields, always keen of finding new problems to stimulate their sense of unified knowledge, questioning assumptions and then creating as a whole process of giving and taking, this way developing many new devices but commercializing very few.

This way we can see innovations are made with faith into realistic actions, made of hard work, modest means and constant self-teaching. Paraphrasing: the key to success is made by making, thinking by thinking and proving yourself wrong overtime. When the time is right, you will be right too.

Many other times, innovation can come by users (*innovation by users*), because they have a deep understanding of their own needs practically and tend to solve their problems themselves. Also, there is *research and development by firms (R&D)*. Research refers to both basic and applied research:

* *Basic research* aims at increasing understanding of a topic or field without an immediate commercial application in mind
* *Applied research* aims at increasing understanding of a topic or field to meet a specific need (more likely to have commercialization than the basic one)

*Development* refers to activities that apply knowledge to produce useful devices, materials, or processes. In this case, we have two specific approaches:

* *Science Push* approaches suggest that innovation proceeds linearly:
  + Scientific discovery → invention → manufacturing → Marketing.
* *Demand Pull* approaches argued that innovation originates with unmet customer need:
  + Customer suggestions → invention → Manufacturing.

Most frequent collaborations are between firm and their customers, suppliers, and local universities, on which the firms have linkages. These are the usual percentages:

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Descrizione generata automaticamente

There are also *complementors*, which are businesses, products, or services that, while not direct competitors, provide value by enhancing or complementing the offerings of another company. They often work in conjunction with a company's products or services to create a more complete and attractive solution for customers.

Complementors and suppliers serve distinct roles in a company's ecosystem. Complementors enhance the value of a company's products or services (you don’t always need them), often in a cooperative relationship, while suppliers provide the necessary inputs for a company's core operations in a transactional relationship (you need them).

Innovation can be *External* or *Internal* Sourcing, which are complements.

* Firms with in-house R&D also heaviest users of external collaboration networks
* In-house R&D may help firm build absorptive capacity (capacity to exploit external knowledge, using tools efficiently in new ways) that enables it to better use information obtained externally

Many universities encourage research that leads to useful innovations, with small revenues, but contributing to innovation trough publication of research results. Governments invest in research through:

* Their own laboratories
* Science parks and incubators
* Grants for other public or private research organizations

Many nonprofit organizations do in-house R&D, fund R&D by others, or both (there are a good number of organizations doing this). The R&D Business expenditure is very much the biggest one, while government spend (apart from India where it’s huge) a good amount of funds on this; also, higher education represents a good investment especially in European countries.

Such collaborations include (but are not limited to):

* Joint ventures (more companies coming together and creating new things)
* Licensing and second-sourcing agreements (patents/intellectual property)
* Research associations (collaborative groups or research and expertise)
* Government-sponsored joint research programs (funding in various sectors)
* Value-added networks for technical and scientific exchange (provide platforms for exchange)
* Informal networks (collaborations of individuals across common interests)

Collaborative research is especially important in high-technology sectors where individual firms rarely possess all necessary resources and capabilities. This allows the size and the structure of networks changing and adapting according to alliance activity and broadening the overall spectrum of collaboration:

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Descrizione generata automaticamente

We can describe collaborative networks between firms in this way:

1. **Collaborative Relationships:** Firms often engage in collaborative relationships, which can take various forms, such as partnerships, alliances, or joint ventures. These relationships involve two or more organizations working together for mutual benefit.
2. **Network Formation:** When firms enter these collaborative relationships, they become part of a larger network. This network includes not only the collaborating firms but also the connections and interactions they have with other organizations, suppliers, customers, and stakeholders. There networks can have many forms, social, communication, supply chain ones, etc.
3. **Information and Resource Diffusion:** Within this collaborative network, information and resources flow between the participating firms. This flow of information can include knowledge sharing, best practices, technological innovations, and market insights. Additionally, resources such as capital, human resources, and technology may be shared or accessed through these relationships. In this way, information and ideas can flow depending on the influence and the impact this can have.
4. **Network Dynamics:** The size and structure of this collaborative network are not static; they change over time. This change is driven by shifts in alliance activity, such as forming new partnerships, ending existing ones, or altering the nature of collaborations. These changes can have a significant impact on the network's effectiveness in promoting innovation and resource diffusion.

The environment plays a huge role in boosting creativity by ideas of individuals, allowing people to engage in research and networks, making the whole society aware in the innovation process. What’s important is stimulating a collaborative network, making people stay where they are.

There are two sources of risks: technological and economical uncertainty, given the acceptance of the market. In a network, the more comes out from a node, the more powerful it is.

In 2000, there are a lot less links rather than those in 1995.

Technology clusters there is a variety of actors coming from different fields, coming together for provision of new knowledge. It must be something that facilitates knowledge exchange.

It depends on the nature of the technology, for example if that can be protected by copyrights or patents, requiring close and frequent interaction.

The more the market is concentrated towards fewer players, the more difficult is to enter that market.

There is a technological spillover when the benefits from the research activity of one entity spill over to their entities, e.g. protection mechanisms, underlying knowledge, mobility of labor pool, etc. This is the agglomeration economy.

# Social innovation

Social innovation (SI) concerns the implementation of a wide range of activities and addressing of social problems and human needs. These are new ideas, meeting people and creating new collaborations. There is a strong relationship between places and innovations, considering social ones because social needs are especially place-specific.

Scholars agree social innovation is a response to social needs emerging in different places, usually happening in rural or remote areas. The term was politically charged and associated with social reform, leading to development of further social and physical technology.

Innovation addresses economic issues, like products/services, processes/organizational structures/marketing strategies, while also addressing social objectives, like roles of individuals/institutions, relation in all kinds of environment, creating formal/informal norms and giving values, for ethics and customs. This is seen as the new combination of production factors, like land, labor, capital, entrepreneurship, combining social practices to solve societal challenges, adopted and utilized by individuals and organizations alike.

Continuing with definitions, the EU Commission defined social innovations as “new ideas that meet social needs, creating social relationships and form new collaborations, creating products, services and models as innovations, to meet needs effectively and encouraging market uptake of new solutions”. The Commission’s actions stern packages and initiatives to find new solutions, like:

1. promote social innovation as source of growth and jobs
2. sharing information about social innovation
3. supporting innovative entrepreneur and mobilizing investors and public organizations

The EU commissions actions relate to:

* Networking, helping organizations across Europe
* Competition, having an yearly competition for supporting new solutions
* Funding, directly funding different programs
* Ecosystems, improve the condition of specific environments
* Impact, gathering and disseminating evidence of innovation actions and methodologies
* Incubation, supporting structures EU-wide
* Exploring, looking for new ideas and applications in different fields

There are several approaches on this:

* a pragmatic approach, where there is the motivation of meeting a social need and predominantly developed and diffused through organizations whose primary purposes are social
* a systematic approach, as a complex process
* a managerial approach, where the new solution is more effective, efficient, sustainable and fair compared to existing solutions
* a territorial approach, conceived for empowerment and bottom-up transformation in terms of stakeholders and distribution of materials

There are many societal levels too:

* micro level, where the social demand level tackles specific problems faced by specific groups of the ground that are traditionally not addressed by the market itself, impact vulnerable people
* meso level, where the societal challenge becomes higher, affecting people of different mixes of social, economic, environmental and cultural factors
* macro level, where the systemic change enquire some fundamental transformation of the way society behaves, in institutions, actors and structures, empowering different sources of well-being

There can be socio-economic drivers, like:

* new sources of competition
* changes of investor confidence
* changing values of assets
* alterations in demand/supply
* employment/unemployment
* poverty reduction

Also technological drivers

* new opportunities in new sectors
* digital inclusion for more and more people
* gathering data and trends to further benefit from advancements
* emerging platforms for social awareness and mobilization
* creating of greener technologies, like renewable energy, sustainable agriculture, and environmental monitoring

And too cultural drivers:

* changing local traditions
* fundamentalisms vs democracies
* cultural gaps
* altering values and norms
* role of media in opinions

SI addresses social needs and new social needs:

* Sustainability drivers, like social pressures, demographic dynamic, migration patterns
* Single events, like financial crisis, natural disasters, health emergencies

Societal changes can create problems and new needs as:

* Societal and economic inequalities
* Economic decline
* Institutional and political distrust
* Digital divide
* New labor structures
* Generational gap
* Gender gap

SIs satisfy societal need, including the ones of particular social groups, also defining actor interactions, involving new forms of trust and social progress overtime. Another category is *innovativeness*, involving the process of new marketing and organizational practices for businesses.

There is a Corporate Social Responsibility (CSR), invoking initiatives and extending beyond meeting immediate interests of stakeholders of enterprises, offering potential for new entrepreneur focus and social outcomes, doing this way change and innovation.

(Some slide examples to social innovation cases here)