# Innovation & Entrepreneurship Basics 2018/2019

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# Chapter 1

# Entrepreneurship

The first lesson about Entrepreneurship is structured with question and answers. It includes contributions of the students that were present during the lecture.

**Question 1.1.** ***What do we mean by Entrepreneurship?***

Some ideas and models of an entrepreneur came out from the initial discussion:

1. our parents may be entrepreneur for us since they support us for our education;
2. Jack Ma, founder of Alibaba Group, may be considered an entrepreneur since he failed multiple times, he learned through his failures;
3. Kevin Systrom, co-founder of Instagram, succeed in earning money by selling Instagram and he discovered new opportunities on the market;
4. Jeff Bezos, founder of Amazon, may also be considered an entrepreneur since he applied constant changes to create value through a process of innovation.

To summarize, an entrepreneur is someone who:

- explores different ideas and has the courage to apply them in the real world;
- understands the customers' needs;
- finds someone who is interested in those ideas and it is ready to invest in order to apply them;
- appreciates the feedback and and stays close to the customers.

**Question 1.2.** ***Which is the definition of imprenditore?***

The Italian definition of imprenditore is slightly different from the concept of entrepreneur: imprenditore is usually related to concepts such as making money, managing business, learning about the economy and the markets.

**Question 1.3.** ***Who are the archetypes of entrepreneurship?***

The Industrial Age Role Models are:

- farmers;

- Mr. Ford: invented the concept of transportation, production chain and started producing cars for everyone;
- Mr. Ikea: empowers his customer by selling them furniture in way such that everyone can build his/her own home;
- Mr. Edison;
- Mr. Walt Disney;
- Mr. Walmart;
- Mr. FedEx;
- Mr. Olivetti: gave attention to industrial design;

**Inspiring quotations**

> *The entrepreneur always searches for change, responds to it and exploits it as an opportunity.*
>
> Peter Drucker,

> *I am always doing that which I cannot do, in order that we may learn how to do it.*
>
> Pablo Picasso,

**Technology Entrepreneurship**

Technology encompasses all new methods, processes, artifacts, tools, and devices that can be used in commercial and industrial use. New technologies form the basis for technology firms where entrepreneurs **create** innovations by combining their technological **know-how** with **business** practices. This technology firms create new commercialized solutions, i.e., **innovations**. Radical innovations are at the basis of the progress for the development of the society.

The **Big Shift** from the Industrial Age Models to the Entrepreneurial Age happened thanks to the $4^{th}$ Industrial Revolution. The jobs of the Industrial Age (and before) were based on physical labour, and knowledge was a plus. The post WWII Era was dominated by knowledge with skills as a plus, while the "old" physical labour was taken as granted. In the Digital Era, knowledge and skills become the mainstream and the distinguisher is the entrepreneurial approach: new jobs will be based on human abilities and non-repetitiveness. The focus will be towards an improvement of non-algorithmic type of skills, such as creativity, imagination, communication, critical thinking, collaboration, team work, etc.

# Chapter 2

# Tech Battles

A battle is essentially made of two elements:

- an analysis of real life examples, called **case study**. It is a widespread methodology used in the real world for education in business. Case studies combine two different types of thinking:
  - *induction* (learning from examples): the idea is to apply a case study to others through a process of generalization.
  - *deduction* (learning from theory): the idea is to apply a general theory to a particular use case.
- British Parliament model: debate without moderators, self-arbitrative, crowd participate to the discussion, multiple people speaking and facing on a particular topic.

**Question 2.1.** ***Why do we use battles in I&E?***

There are two main reasons:

1. *innovation*: talking and debating may create innovation and the debate structure shows how innovation is the composition if many "soft factors"; the most innovative ideas came out from cooperation. Moreover, multiple points of view allow the exploration of flaws and good points.
2. *entrepreneurship*: the soft skills required to debate are the same that compose an entrepreneur's toolkit; soft skills help you during the management process and allow you to learn how to be persuasive.

**Question 2.2.** ***How do we do tech battles in I&E?***

In our tech battles, we will use open and closed debates; the difference between them is that in closed debates we already know who won the discussion, while open debates are matters that the society has not yet settled upon. We will use both retrospective reasoning (given the state of the world, how did we get there?) and prospective reasoning (given a beginning, how could we end?). The goal of the retrospective reasoning is to retrospectively find answers and its structure looks like the following:

$$\text{State of the world} \rightarrow \text{Analysis} \rightarrow \text{Explanation}$$

Instead, the goal of the prospective reasoning is to create questions and affect the final result; its structure looks like the following:

$$\text{Alternative beginning} \rightarrow \text{Controversy} \rightarrow \text{Reconciliation}$$

The winner of the battle is decided at the end of the debate by the crowd; the winner is the most plausible, not the most right. Each battle has three main levels:

1. Horizontal content: a social/economic content that can be applied to any battle; it goes across battles and provide a coherent context throughout the course;
2. Vertical content: the domain-specific content of the battle which gives the "core matter of fact" to each debate;
3. Scenario: an abstraction that allows to explore more freely and open a debate on the content.

# Chapter 3

# Innovation Theory

In this lecture we have seen how innovation can be traced and placed in our world and environment. The way we relate innovation to our world is affected by how we perceive our world and how we act in the reality that we perceive. If we want to do innovation, we want to understand how it will change the world and how we want to change the world. To do so, we need to have a clear view about what our reality is today. We will deal with innovation theory and with epistemology, which is the branch of philosophy concerned with the theory of knowledge. Epistemology has to do with how knowledge is created and managed, and how we can make something with knowledge.

**Question 3.1.** ***Why do you think this is relevant to innovation?***

- maybe knowledge allows us to see something that is going on in the world, to capture opportunities, and to find the way to improve;
- knowledge give us lens to see the opportunities.

**Question 3.2.** ***Why do we care about how we acquire knowledge?***

- maybe because we can find a better and faster way to acquire knowledge

Before we were looking at opportunity in the world through the knowledge, but if we have ways in which we can acquire knowledge and we observe how we acquire knowledge, we can look for ways in which we can have opportunities for knowledge, which then generate opportunities for practical innovations.

### Historical perspective

We will start with some historical perspective about how in the past we looked at knowledge, how we looked at knowledge acquisition, and how we managed that knowledge in order to create innovation. When we talk about historical perspectives, some elements can come to our mind:

- Objectivism: least effort and minimum path. It is what everyone agrees with the meaning and independent of the people. Where we put laws and facts. There is the evidence that something is true. Objective is something that is independent from the subject.
- Determinism: Believe something is going to happen based on some laws. How we predict the world. Still there is something external that is independent from the subject.
- Modernism: we tried to create perfect a model that suits the worlds since the last three centuries. It is the approach to predict and explain and it is related to formula and models to find realities. Science proves to work well in lots of fields to create knowledge.

- Romanticism
- Rationalism

In the historical period we have three different perspectives:

**certainty** : something that is always true or false, or, at least, it is extremely difficult to change. Certainty may block a possible process of innovation. The probability of a certain event is 1; it is is fixed and known a priori.

**risk** : may be an opportunity (either positive or negative), a possibility; managing trade-offs is the way of dealing with risky situations. In a risky situation, the probability is fixed and known a priori but it is less than 1.

**uncertainty** : probabilities are not known a priori and they may change; you have to keep studying the situation and to react to possible changes.

All of these perspectives have something in common: the **probability**; there is always the chance of achieving something and the probability is fixed and known a priori (but you can be not aware of that probability, as in an uncertain situation).

**Question 3.3.** ***How does innovation happen?***

Innovation happens in different ways depending on the particular perspective:

**certainty** : innovation happens through the impact of large scale events (example: wars)

**risk** : innovation happens through the study and application of a better strategy (example: winning millions with blackjack using martingala)

**uncertainty** : innovation happens through the improvement of our searches.

**Question 3.4.** ***Who is the entrepreneur?***

An entrepreneur may be seen in different ways depending on the particular perspective:

**certainty** : an entrepreneur is someone who disrupt the way of living;

**risk** : an entrepreneur is someone who is able to find a new and better strategy and to apply that strategy in the real world

**uncertainty** : an entrepreneur is someone who is able to streamline the process in order to improve the researches.

**Contemporary perspectives**

When we talk about contemporary perspectives, some elements can come to our mind; those elements partially in contrast with those that were present during the historical period:

**Post-truth** : We take emotions more important than the reality and the truth may constantly change. Political and social media debate. Combining the facts to invoke emotion response to get popularity. The social media works as sort of amplifier to exponential the effect. Social media allows to create isolation of messages and echo;

**Post-modernism** : Particular setting or environment could be seen in different ways. Generally it has 2 meanings: too complex and safe forward, disaster happen but to survive;

**Subjectivism** : every one has a personal truth; there are still some rules, but those serve only as a common ground for debating; the topic of the debate is not objective as it was during the historical period.

In the contemporary period we have lots of different perspectives:

**ambiguity weak** : use democracy and even technology to find a solution. The process used to find a solution is a chaotic process and involves participants, problems, solutions, and decisions. Participants contribute to the choice of opportunity, which is a moment in which a decision could be taken. Making a decision in a chaotic environment may lead to improvements. The process of finding a solution may be linear (we find participants and elicit problems; then we propose solutions and we take a decision) but it is not always the case.

**ambiguity strong** : in other words, sense making; it is the idea that apply when a crisis happens but someone is able to propose an interpretation that causes reactions. Since the situation is complex, you have to make sense of it and try to find a way to adapt. Make sense of the environment and have your decision.

**black swans** : before the discovery of black swans, people think there only exists white swans in this world. It is an example of how the scientific method works, which is the following:

$$\text{theory} \rightarrow \text{hypothesis} \rightarrow \text{experiment} \rightarrow \text{falsification/conclusion}$$

There are circumstances when something unexpected happens; we have to find a way to navigate and make plans.

**the fallacy of Induction** : Induction cannot predict what is going to happen tomorrow; it only says what has happened until now. For instance: a farmer always feeds a turkey at 9 am; the turkey may erroneously think to be fed every morning at 9 am. People are sometimes misled by empiricism.

**Enrolment & Translation** : there are some elements in our world that shape our interaction; the enrolment of the environment creates on idea on our mind and affect the way in which we interact with others.

**Actor network theory** : out world is a mesh of actors; they can be human or non-human (like feelings, believes). A non-human actor either substitute a human one or represents the human that designed it. During a human to human interaction, there may be a non-human actors in the middle (example: headphones, payment system).

**anti-fragility** : in logical sense, it means robustness or durable, resilient, hard. And even better, when stressed, it becomes stronger.

**post-truth** : the emotional value of something becomes more important than its real value; appeal to emotions rather than reality.

**Question 3.5.** ***What do these perspectives have in common?***

1. complexity;
2. unpredictability, never one way straight;
3. uncertainty;
4. action/reaction.

**Question 3.6.** ***How do we innovate?***

We can innovate by learning how the system works and by leveraging the asymmetry of information to generate value.

**Question 3.7.** ***Who is an entrepreneur?***

An entrepreneur is someone who is able to disrupt, to modify the status-quo.

# Chapter 4

# Creativity and Storytelling

**Question 4.1.** ***Why do we chose the topic of creativity?***

Because imagination and creativity will become probably more and more the differentiators to help people to find a job, to find more opportunities in the future, and to distinguish themselves from machines.

This one is a guest lecture taken by Maurizio Mantero. **Creativity** is a slippery word and open to many interpretations. Strictly speaking, it is the process of creating from nothing. Therefore, no human being would be capable of creativity if not in a relative sense, What Maurizio offered us is a very practical perspective of someone that has worked in many creative jobs in his life. In fact, Maurzio's personal experience is the following:

- writer;
- painter and sculptor;
- illustrator;
- collaborator in the process of building an airplane;
- collaborator in the creation of a video game.

**Question session**

**Question 4.2.** ***Where do you take your ideas for comics?***

Ideas are everywhere. Thinking ideas is something of good point. Remember the core of story is that you cannot invent too much but make variations in. The meaning of life is to catch butterflies, but in the end is what you have discovered.

**Question 4.3.** ***How does your opinion about work change through the life?***

Not much. I also took similar approach even in video game.

**Question 4.4.** ***How to keep innovative during your career?***

Stay ahead of the technologies and in this sense it keeps you innovative.

**Question 4.5.** ***What will replace comic in the future?***

Video games I guess.

**Question 4.6.** ***Is using drugs some kind of cheating?***

No, the only warning is that drugs have artifacts that need be negotiated. If I used drags, my drawings would be better. Why not? Hope more than effect.

**Question 4.7.** ***Do you think creativity is mandatory in a contemporary business?***

Yes, creativity for sure will be something that will put you in an advantage position.

Creativity is not a one time thing; instead, it is a process. It happens over time and the more you dig into, the more creative things you can come up with. Furthermore, creativity has a structure and a system!

# Chapter 5

# Digital Transformation

Digital transformation is a topic that can be both interesting and challenging. Definitions of digital transformations that arose during the lecture are:

- a period when industries are striving to create innovation more than before;
- changes in the modern businesses in order to be competitive;
- technology entering in business and changing how organizations work.

During the lecture we divided in groups to summarize what we understood from watching the videos and we presented the main point to the other groups. The following is a brief bullet list that contains the highlighted concepts:

## 5.1 Tech Perspective

- companies are nowadays making a lot of experiments; in the past, there were lots of failures, whereas today there are less;
- there is the need of racing against the others in the process of creating new technologies, so timing is very important;
- B2B and B2C business model are disappearing;
- there is a significant switch towards user-centred models;

**Question 5.1.** ***Is technology the triggering thing for digital transformation to happen?***

Yes, since technology provides the ground and the foundation to change.

## 5.2 General Perspective

Moore's Law is getting exhausted due to physical limits and the computational power is slowing down its evolution.

**Question 5.2.** ***Can this slow down affect the Digital Transformation?***

No, because customers do not need this huge amount of computational power.

**Question 5.3.** ***Is our an evolution era or a revolution era?***

Our era is really an evolution era. It is not a revolution that disrupt things; instead, it is a very fast evolution era.

**Question 5.4.** ***Does a better technology always win over the others?***

No, not always. Instead, the one that wins is the nearest to the customers' needs. Indeed, the top failing reason for start-up is no real marked need.

**Question 5.5.** ***Do we have ways to predict where Digital Transformation is taking us?***

We can predict something, but the most important thing to do is to go ahead and to overtakes the state of the art. Try to follow the Digital Transformation thread and try to be forward-oriented. Not taking the right decision can be very dangerous in a fast evolution era and even if you are one of the best, you must keep the pace in order to avoid losing positions.

## 5.3 Macro Perspective

- accept changes and face the changing market while trying to be always ahead of customers needs (Netflix);
- changes start from thinking; two different ways of thinking are the European and the US ones: the first is "take as little risk as possible", whereas the second is "take more risk and if you fail, try again";
- leaders and managers are two different figures: leaders are overcoming managers since they are emotionally connected in the process improvement. The task of a leader is to show the way and to encourage employees to reach a goal.

**Question 5.6.** ***Can we apply Digital Transformation to small companies?***

It depends on the company since there might be places where Digital Transformation cannot work because of the people.

## 5.4 Company Perspective

- digital transformation affects all the business models but at different speeds.
- Depending on the company structure, **change** and **zero** are two different ways to do digital transformation. Change means performing an evolution, while zero means starting from zero.
- through digital transformation, people's need changed and new need arose.
- there is a lack of regulation at the moment. As it was 200 years ago for doctors and teachers, nowadays the problem is to get a certification.
- there are different cybersecurity problems involved in the Digital Transformation process.

# Chapter 6

# From Close to Open Innovation

Often, most innovations fail. To innovate, you need to experiment and to try/fail multiple times; it is not a rule, but usually it works like that. Often, when a company innovates and another does not, the first one is faster, or produces a better product; thus, the second company will be in difficult. Again, it is not a rule and it depends on the company, on the market, and on the environment in which you are taking your innovation.

> *The development of science and the accumulation of knowledge took us to a paradigm shift.*
>
> Thomas Kuhn,

When a new paradigm shift emerges, the world is seen and perceived differently. Nowadays, we are going through a paradigm shift in innovation and in the way we do it: from close to open innovation. Beyond open and close innovation, there is also "disruptive" innovation, which changes social practices.

## 6.1 Close Innovation

Close innovation happens within the firm and the logic is the one of "buy" knowledge and develop it internally. Innovation is not happening throughout the whole organization; instead, it is developed in a particular department and then extended to the others. It follows a linear model that can be either production push (you innovate and push the innovation on the marker) market pull (the market itself gives you the need for an innovation). Close innovation is completely done internally. The close paradigm works following the so-called virtuous cycle:

1. increase the Research and Development (R&D) and marketing investments;
2. find a fundamental technology or a market breakthrough;
3. create new products and services;
4. use the existing business model to produce new revenues.

In a similar scenario, the following are of fundamental characteristics:

- recruit and buy the best, internalize or make what is needed;
- sort out what can be produced or what is wanted;
- achieve the goal of being the first comer;
- R&D leadership is the key and there is the need to protect the intellectual property;
- customers are passive buyers that should not be shared with anybody else.

What if the needed knowledge and competence is not available? What if the critical mass of investments is too big? What if top managers know less the those on the spot? Can we always plan and predict what is a good idea? These are some questions might arise. If we are in a situation where the assumptions that we made are changing, we find ourselves in a **competence trap**.

The organizational model used in closed innovation is typically vertical:

- few decide what needs to be done (either R&D or top managers);
- these decisions are transformed in action plans;
- these action plans are transformed into operations;
- market feedback is not relevant and the operational line has nothing to do with the external world.

We can identify this internalization with the verb **MAKE**: a company is in control of everything.

## 6.2 Open Innovation

On the opposite side, there is the **BUY** paradigm: as an organization, you recognize you cannot do everything on your own and you start collaborating with others (for instance, universities or research centers). Furthermore,

> *“People are inherently creative and want to engage with organizations; they dont want to have products and processes imposed on them.”*
>
> Venkat Ramaswamy & Francis Gouillart,

Open innovation occurs when some of the assumptions made in the close paradigm start to be no more applicable; if you keep applying then virtuous cycle, you will fall in the competence trap, where you apply always the same ideas without having good results. Two key drivers in the open innovation are:

1. **funding**: the breaking of the loop goes hand in hand with an evolution of the financial market. The innovation funding chain that is at the core of a open model follows 4 steps:
   a) Concept(few people, no money) $\xrightarrow{\text{business angle or incubator}}$ Business Plan;
   b) Business plan (team, some money, prospects) $\xrightarrow{\text{venture capital}}$ First Sales;
   c) First Sales (basic organizational structure) $\xrightarrow{\text{private equity}}$ Scale-up;
   d) Scale-up (core organizational structure) $\xrightarrow{\text{investment banks}}$ IPO (market player or on the shelf);
2. **end of knowledge monopolies**: the breaking of the loop coincides with the end of knowledge monopolies: knowledge is distributed, more valuable and capable to change.

## 6.3 Close vs Open Innovation

If there is a scarse knowledge, you are more biased toward close innovation, whereas, when knowledge is abundant, you shift toward open innovation. The advance of close innovation is the minimization of dependencies from external organizations, but, as a drawback, it lacks in flexibility. The advantage of open innovation is the total flexibility, but, as a disadvantage there is total instability.

# Chapter 7

# Organizations

This lecture will be focused mainly on

- organization structure and value chains
- models of organizations

**Question 7.1.** ***Why should we organize instead of doing things on our own?***

- to deal with big projects;
- because there are different minds to support the job;
- to try to integrate different skills to achieve better results in less time.

**Question 7.2.** ***How are organizations related to innovation?***

- an organization probably wants to produce something innovative;
- ab organization wants to be aligned with the time and might need to innovate.

**Question 7.3.** ***Have you ever heard about intrapreneurship?***

It is the process of innovation placed inside a company and the structure that a company uses to innovate in the business.

## 7.1 Organizational structure

The organization can be generally classified into following categories:

- Functional organization: Vertical/Bureaucratic.
- Divisional organization: on divisional lines.
- Matrix organization: A combination of division and function.
- Spaghetti organization: no hierarchy, function or division. Usually it is knowledge intensive and information based emerging organization

## 7.2 Porter's Value Chain

Disassemble a company into major strategic activities, or major units.

- **primary activities**: directly engage the creation of the product or service.
- **support activities**: support primary by providing input, technology and human resources.

# Chapter 8

# Social Innovation

## 8.1 Ethics

**Question 8.1.** ***What is ethics and why do we care?***

It is about doing the right thing, deciding what is good and bad from a moral point of view; We care about it because we don't want to be bad and because what we do involve people.

**Question 8.2.** ***What happens is we do not care about ethics?***

If we do not care about ethics we might face consequences that were not in our plans.

**Ethical trade-off** occurs when we have a choice and the choice we take has some consequences. For instance, autonomous cars must decide on their own; if an accident might arise, they might need to chose between killing two different people. Another example is the one represented by selling guns: you want to make profits but guns may kill people. Each choice we are going to make embeds some ethical value judgements. While you are thinking of making value, there is ethics that is key on all innovations we are tackling.

**Question 8.3.** ***What is innovation?***

Innovation is made by two components: guardare video

**Question 8.4.** ***Why social?***

Social is related to the way that people live.

**Question 8.5.** ***What is social innovation?***

Some kind of change that modifies the way people interact among them. We are talking about innovation that create new value in the field of social, and we do not care on economic value.

**Question 8.6.** ***Can you think about a social innovation in general?***

Some examples are:

- a particular product to address the ageing of the population;
- same sex marriage;
- creating an inclusive environment in a class without considering different learning rates.

We need to discuss about **politics** and **policy**: policies refers to actions, laws, regulations needed to address a particular problem; politics is more about the environment in which policies are created. If we take the topic of immigration, politics is related because there are politicians talking about different actions to address the problem.

**Question 8.7.** *Why is social innovation important today? Why there has been lot of interest around social innovation?*

We have four freedoms at the base of Europe: the free circulation of people, the free circulation of goods, the free market, and free circulation of labour. The fifth freedom proposed in the Lisbon agenda was the free circulation of knowledge. In the Lisbon agenda there was the need to put some goals for Europe: one of them was the need to create a bigger economic area in Europe through the use of knowledge. The idea behind social innovation was the possibility to solve the problems caused by the 2008 economic crisis. Education, environmental quality, and healthcare sector were three among all the goals set by the Lisbon agenda.

We present three approaches to Social Innovation:

1. narrow view: it applies to small group of people and not to the society; moreover, it is an average person. The narrow view is about addressing problems of group of people that are in disadvantage and trying to improve their life. Example: scholarship for non rich people, charity (free food for people that cannot afford it), Medici Senza Frontiere and Amnesty International to help people to afford healthcare.

2. societal challenges: immigration crisis, international cooperation, unemployment, production automation, loss of trust on governments and media, increasing success of extremist governments, environmental problems, information related problems, aging population, digitalization; it is about the idea of improving and solving these huge scale problems. Other societal challenges are food, energy supply, climate change and environment, transportation and mobility, raw materials.

3. systemic transformation: (an example of systemic transformation that is not solving a societal challenge is the new definition of friends taken by the introduction of social media)

The difference between societal and systemic is that societal tries not to change the sociaty, while systemic aims at radically modifying the society. These three levels are concetrics, with the narrow view representing the internal circle, the societal challenges are in the middle, and the systemic transformation representing the biggest circle.

Why do we do this? There are three reasons important to consider

1. no company is able to work without some social perspective in their vision (how they treat they workers, the sustainability of raw materials)

2. social value is an alternative and added value that can be part of your entrepreneurial proposal

3. everything we discuss it started being an different (ascoltare video)