Innovation Processes

Area 4 – Entrepreneurship in farming

Lesson 12 – Toolkit for Agripreneurs 4.0

Sequence ID – 52

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A4.L12.T2 Innovation Processes

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Overview

Research and innovation deployment requires skills and time. Innovation is a process that permits companies and groups to adapt to social, economic and environmental changes. There are different approaches to innovation. Some companies prefer to keep innovation place within the company boundaries, (closed innovation), meanwhile others companies have an open innovation approach, so they activate innovation towards a continuous internal and external exchange. This kind of approach is based upon an open and fluid management of knowledge and know-how between all the stakeholders. Among the many places for innovation, one example is the FabLab global network, in which inventors of each sort share ideas, time, space and knowledge.

1. What is Innovation?

Innovation is a process that permits to companies and groups to adapt to social, economic and environmental changes

A novel idea implemented in a particular way can be considered an innovation if it is new in the context, even though it may not be new to the world.

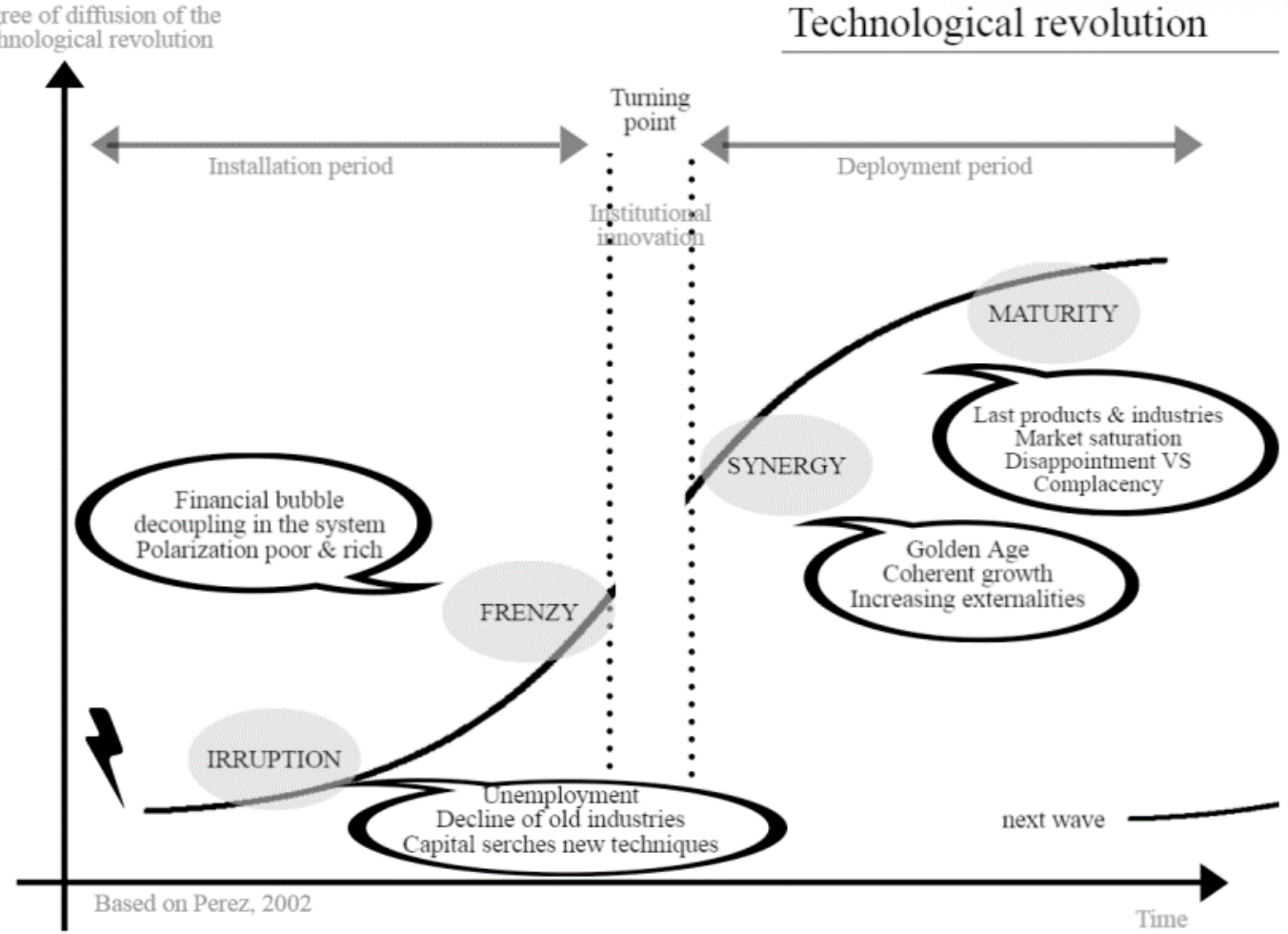

Fig. 1 – Theory of waves of technological revolution

1. What is Innovation?

Invention or discovery of new tool it is not yet innovation.

The systemic approach need to realize the difference between to know (invention) and to think about consequences of application.

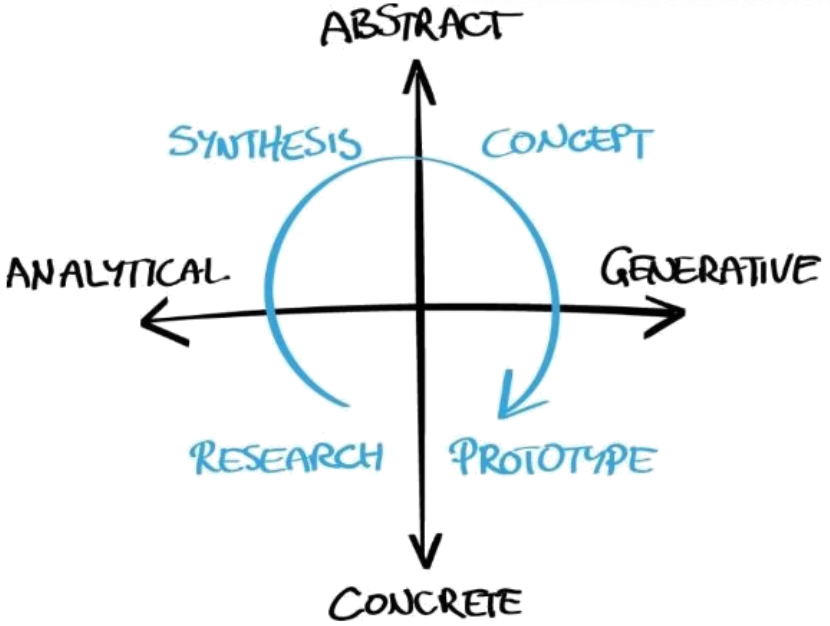

Fig. 2 – The innovation cycle proceeds from analysing concrete market needs to generate abstract concepts about the synthesized insights in order to build prototypes.
https://medium.muz.li/four-skills-a-business-designer-needs-to-master-2a03569f7e43

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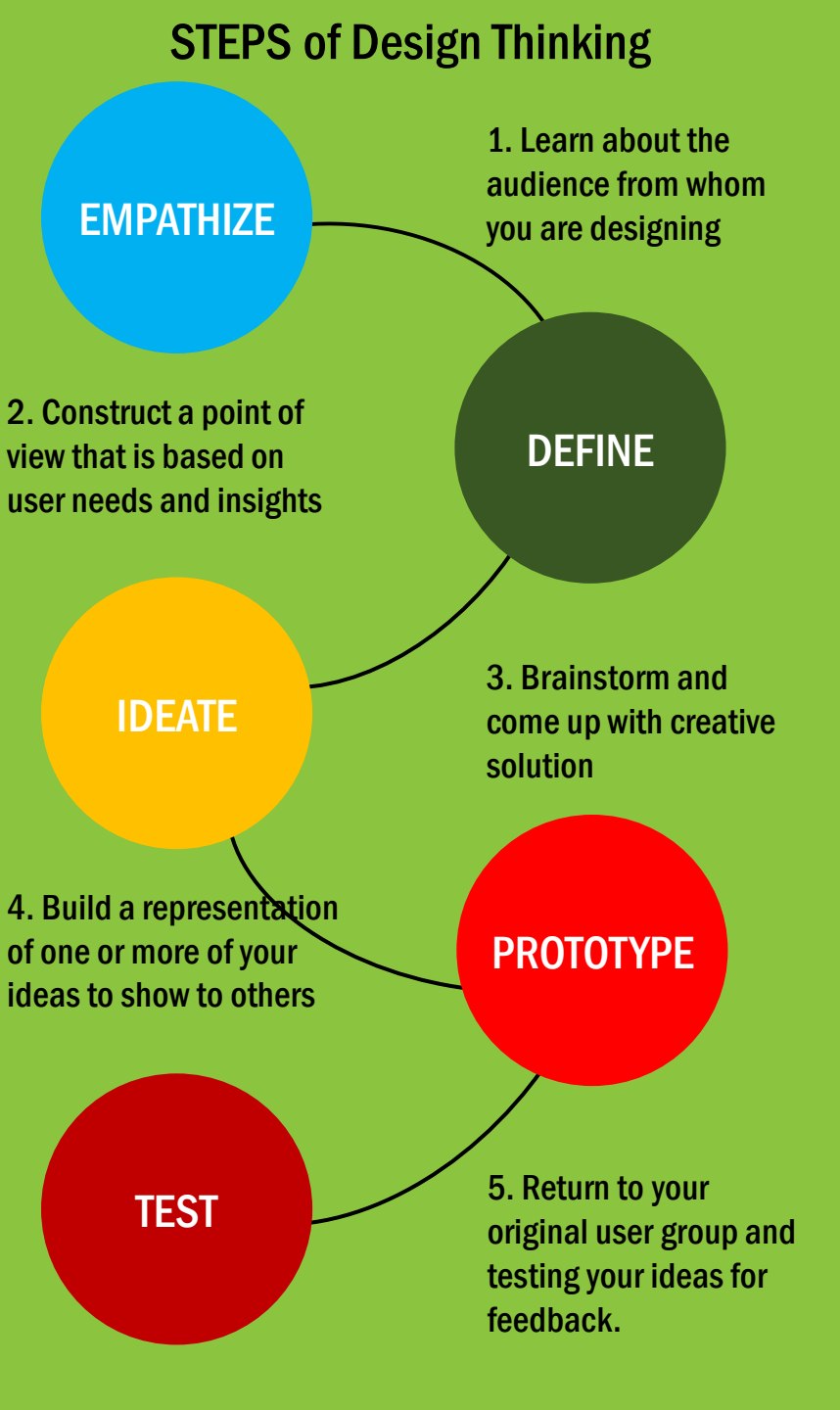
2. Design Thinking

Design thinking is a methodological approach to innovation. The process and the tools are inspired by those adopted by designers for the development of creative ideas, their selection and verification. Design Thinking facilitates the taking of strategic decisions, also reduces the share of risk and rapidly enhances the effectiveness of the company.

" But that is more than simply good ergonomics, putting the buttons in the right place. It's often about understanding culture and context before we even know where to start to have ideas."



3. Close Innovation & Open Innovation

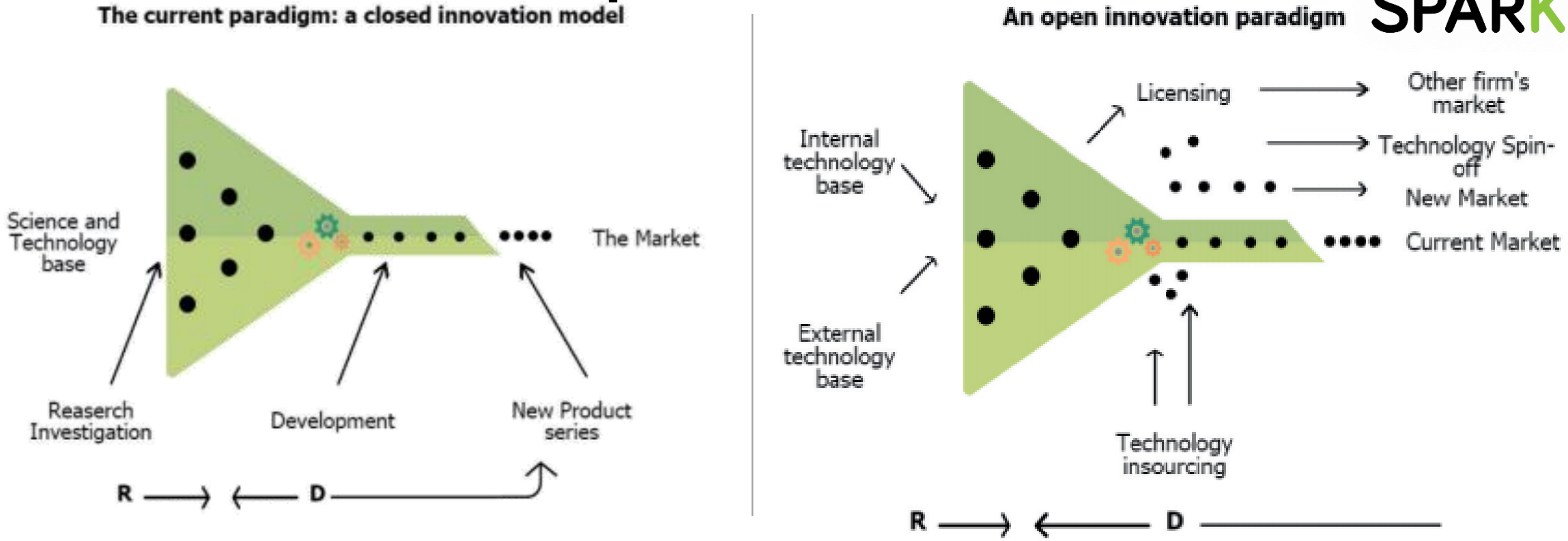


Fig. 3, 4 Illustrations of Closed & Open innovation taken from Lombardo S. (2018)

"The Open Innovation is a paradigm which states that companies can and should use external ideas as well as internal ones, and access to internal and external paths to market if you want to advance in their technology skills." (Chesbrough, 2003)

The innovation process in farm machinery development

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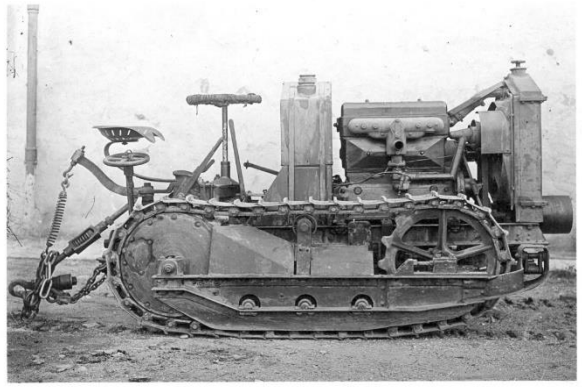


Open Science

Open science encompasses unhindered access to scientific articles, access to data from public research, and collaborative research enabled by ICT tools and incentives. Broadening access to scientific publications and data is at the heart of open science, so that research outputs are in the hands of as many as possible, and potential benefits are spread as widely as possible:

- Open science promotes a more accurate verification of scientific results. By combining the tools of science and information technologies, scientific enquiry and discovery can be sped up for the benefit of society.
- Open science reduces duplication in collecting, creating, transferring and re-using scientific material.
- Open science increases productivity in an era of tight budgets.
- Open science results in great innovation potential and increased consumer choice from public research.
- Open science promotes citizens' trust in science. Greater citizen engagement leads to active participation in scientific experiments and data collection.

Definition retrieved from OECD (Organization for Economic Co-operation and Development)
https://www.oecd.org/science/inno/open-science.htm

Open Innovation

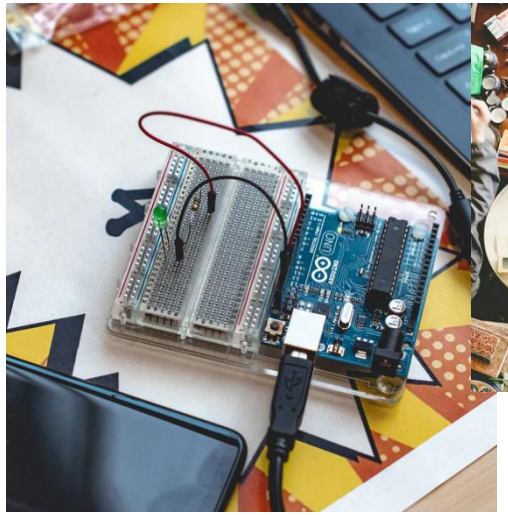
"An example of open innovation is the Open Source Ecology project (OSE). The OSE mission is to create a global collaborative platform that optimizes economic development, production and logistics, through the open source collaboration to accelerate innovation like never before. Specifically, the project aims to develop and disseminate the opportunity to create modular agricultural machinery and adaptable compared to all agronomic situations, made for self-construction. OSE is a virtual platform to access, to share and find information as for example, a default set for the realization of 50 different full-scale industrial machines (Global village construction set), like a LEGO set, achievable at much lower cost compared to market costs in order "to build a small, sustainable civilization with modern comforts". The web site specifies all construction costs, plans and the share of software for electronic components is driven primarily by Arduino. Everything is tested physically in a real farm located in Missouri where the reference community of OSE meets and collaborates in the project, also via conference call. The idea, even not easy to achieve because the regulatory reasons tied to the machine's testing (at least in Europe), enters into a well-known mechanism of commerce and embraces a new technology paradigm fully, disintermediating the availability of means and triggering a social innovation process that potentially can be global." (Lombardo, 2018)

Another practical example
"How Hacking Is Advancing the World of Farming"
https://www.youtube.com/watch?v=2GqBFfIoTEk

https://www.opensourceecology.org/about-overview/

4. Social innovation and knowledge sharing

"Ensuring technological co-generation through appropriate tools can mean resorting to the creation or discovery of physical space to share as, for instance, a collaborative space. The collaborative space is a physical and/or virtual place where there are groups of people finding forms, methods and ways of working, and exchange knowledge involving a high level of cooperation, responsibility and partnership between actors different from each other (researchers, artisans, professionals, businesses, etc.). The goal is to promote the exchange of ideas, co-designing services, places and products, in other words the basics of the open innovation paradigm (Montanari, Mizzau, 2016)." from Lombardo (2018)



More info at http://tiny.cc/2d8hdz

"the EU is already supporting the development of Digital Innovation Hubs (DIHs). DIHs act as one-stop-shops enabling any business to access the latest knowledge, expertise and technology for testing and experimenting with digital innovations. They provide connections with investors, facilitate access to financing for digital transformations, and help connect users in agriculture with ICT suppliers of digital innovations across the value chain. DIH can help both agricultural businesses and ICT companies to become more competitive, thus boosting growth and job creation."

From the EIP-AGRI seminar 'Digital Innovation Hubs: mainstreaming digital agriculture' took place on 1-2 June 2017 in Kilkenny, Ireland.

Social innovation & Technology 4.0

Read the manifesto http://tiny.cc/1h8hdz

5. Gamification

Gamification

/ˌgeɪmɪfɪˈkeɪʃ(ə)n/

noun
1.the application of typical elements of game playing (e.g. point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service.
"gamification is exciting because it promises to make the hard stuff in life fun"

Fig.7 example of gamification taken from https://www.farmdefenders.org

The example of VitiVR from Turkey
“VitiVR is a viticulture VR training simulation being developed for viticulture, enology and agriculture education and job orientation. VitiVR is support the transfer of theory into practice and let the users live the experience in a virtual and interactive environment. “ from VitiVR website

Fig. 8 example of using Virtual Reality with glasses

See how it works! https://youtu.be/LYn_w1mIsBs

References & Further Reading

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