**Innovation Management**

**Masters’ Degree in Data Science Engineering**

**A.y. 2020/2021**

**Written Exam Sample**

The following exam is divided in two part: i) the first one is dedicated to strategy, organization theory and concepts of data and digital platform economics; ii) the second one is dedicated to innovation management.

Each part is composed by 8 multiple choice questions and 1 open question.

Multiple choice questions provide 1 point per correct answers.

Open questions provide 4 points.

**Part A – Strategy**

1. Economic value is
   1. Price minus cost bore by all the suppliers intervening in the production of the good and/or delivery of the service
   2. Benefit for the costumer minus cost bore by all the suppliers intervening in the production of the good and/or delivery of the service
   3. Benefit for the costumer minus price
   4. Profit for the company
2. Industry Five forces model is as analytic tool used for
   1. Assessing the economic attractiveness of a sector
   2. Making predictive analytics for the average industry profitability in a sector
   3. Assess the scalability options that the company has
   4. None of the previous statements
3. With reference to the industry five forces model, Sharing economy in sectors like restaurants and hospitality (multiple answer allowed)
   1. Increases the threats of substitute products
   2. Increase entry barriers
   3. Decrease price rivalry, bringing a reduction in competition
   4. Reduce entry barriers
4. Internet of Things and analytics approaches on the shop floor of manufacturing companies produce
   1. Line employee involvement in fine-tuning of algorithms
   2. Automation of tasks that are non-routinary
   3. Less skilled operators, who have to run just activities for which automation does not pay off
   4. None of the previous statements
5. Automation bias means
   1. Giving undue weight to the information coming through the monitor…ending up believing information even when it is wrong or misleading.
   2. A form of sample bias in the data on which machine learning algorithms are trained
   3. When the analysis run by software gives us a false sense of security, humans disengage from the part of work software is doing
   4. None of the previous statements
6. Peck’s decision to fire creative directors and use data scientists and predictive approaches in defining what people wants was essentially wrong, because
   1. It’s hard to predict consumer preferences in fashion, since they are shaped by companies and creative directors
   2. Creative directors are more important than data scientists for building brand identity and customer loyalty
   3. It’s s hard to predict consumer preference and purchasing patterns from data that are available on the Internet
   4. Each of the previous statements
7. Which of the following alternatives is an example of negative same-side externality on a platform business?
8. Growing complexity of choices
9. Increasing number of “bad” participants
10. Competition between peers
11. None of the other
12. In which case you may have sustainable competitive advantage for your data?
    1. Product improvements are clearly visible
    2. Your data are open source
    3. The marginal value of data decreases slowly
    4. None of the other
13. Illustrate the main organizational characteristics of AI Factories (i.e., companies that use AI in their operating model like Netflix, Amazon, Facebook) in reference to work practices, approaches for market analysis and exploration, way data architectures are management. Explain how such characteristics are linked to their scalability (Define also scalability)

Lecture on Organization of AI Factories + scale, scope and speed

**Part B – Innovation Management**

1. Indicate T or F to the following definitions

|F| Most innovations are now just service only

|T| Innovation is always linked to a process of adoption

|T| Innovation is the economic exploitation of an invention

|F| An idea to be innovative, it has to be radical

1. Indicate T or F to the following definitions

|F| Innovation is only made by startup on the territory

|T| Customers and actors’ network are relevant for the innovation process

|T| Big companies innovate through exploration and exploitation mechanism

|F| Innovation is always a positive thing

1. Indicate some of the conditions justifying the **disruption** (1 Point)
2. Incumbent companies do not recognize the emerging paradigm and focus on their current market
3. The entrants identify the right paradigm and the right timing of entry
4. For the customer weighs (it is hard) switching costs

4. Which of the following statement is correct?

* 1. Standards support scale economics
  2. Standard do not emerge as consequence of network externalities
  3. Standards always emerge as consequence of normative processes
  4. Standards do not have economic value

5. Product or Service Platforms may … (more answers are correct)

|X| Influence the possibilities of customization

|X| Have impact on production and development costs

|\_\_| Be uncorrelated with firm’s business strategies

|\_\_| not be influenced by product portfolio

6. The evolution of an industrial sector and the maturity of a technology can be studied

|X| Through the evolution of patents

|\_\_| Without considering performance of technology

|X| Looking at evolution of the number of firms

|X| Considering the adoption curve

7. The dominant design

|X| In services it emerges in the process (not in the product),

|X| In continuous processes it determines the inversion of the temporal relationship between the rates of product and process innovation

|\_\_| Is always linked with the standard

8. Indicate some of the conditions for

Radical innovation: both technology and relationship between components change

Architectural innovation: only relationship between components changes

Modular Innovation: technology changes, but the relationship between them not

Incremental innovation: we do not find any changes in both technology and relationship between components

9. Discuss Henderson e Clark model

Lecture 2 Montagna