



ISEG | ULisboa | 2023/2024

Master in Innovation and research for Sustainability

Evaluation and Management of R&I Projects
Final Exam

Ana Casaca & Marco Ferraz

Instructions

1. You have 2 hours to complete this exam.
2. You can only provide your answers in English.
3. Answers can be handwritten and delivered in the end of the exam or typed and handed in by e-mail in a doc or pdf file to: apcasaca@gmail.com; mdferraz@gmail.com
4. The exam has 2 sections.
5. You can consult any source, but be sure to cite any relevant references, including those consulted on the Internet.
6. Be mindful that exam answers will be put through software that checks for possible cases of plagiarism. The penalty for plagiarism is a failing grade.
7. When citing other references, please provide the full reference at the end of your answer.
8. Be mindful of the time allotted for the exam and try to provide brief and systematic answers.

PART I [12 points]

Please choose four questions of Part I to answer for the exam:

Question 1.1 [3 points] – Understanding your market is key to implement innovation. Please describe the three types of market according to market definition and provide an example.

Question 1.2 [3 points] – On designing a business model there are 5 phases in the analysis that must be considered. Specify and describe in a short sentence each of it.

Question 1.3 [3 points] – Outline the positive and negative arguments of implementing and Innovation roadmap - don't forget to mention the importance of externalities.

Question 1.4 [3 points] – Identify and explain three metrics used to measure innovation within R&D projects. Why are these metrics important?

Question 1.5 [3 points] - Discuss how an organization should formulate its R&D strategy to align with its overall business strategy.

Question 1.6 [3 points] - Explain the challenges of resource allocation in R&D management. How should a manager prioritize resource allocation among competing projects?

Question 1.7 [3 points] - How do collaborations and partnerships enhance R&D outcomes? Provide an example of a successful R&D partnership and its impact on both parties.

Question 1.8 [3 points] - Discuss the ethical considerations in managing R&D projects. How do ethical practices affect the sustainability and public image of an organization?

Part II [8 points]

You work on the innovation department of a medium size company that is struggling with data management and control. This subject is crucial for the sustainability of your business as regulation demands a strict control of your documentation and you are far behind the rest of the market.

You receive a contact from a startup company working in this realm and that presents a novel solution suitable to your business. According to them, by using an AI based

cognitive system supported by a knowledge database with dedicated ontology, it is possible of adding all documentation and automatically divide it into categories.

This would save you a significant amount of time and allow to have all data organized and compliant. When digging deeper on the solution, you realize the proponent company had a good, quantified value proposition, a solid market research, but they don't have a Minimum Viable Product (MVP) – this is something you must consider.

2.1 - Project Valuation [4 points]:

The project proponent (startup company) asks for an initial investment of 150k€ for the development of an MVP to be developed in 6 months. Considering that your bank deposits have an annual interest rate of 5%, what is the opportunity cost of investment – Demonstrate your calculations.

It is expected that a first version of the product is ready after one year. Using a discount rate of 6% calculate your NPV and IRR – Demonstrate your calculations.

2.2 – Risk assessment [2 points]:

What type of risk analysis should you consider in this case. Please describe one specific method and provide calculations and related assumptions if that is the case.

Please indicate what variables can be considered for a scenario analysis and what mitigation measures can be associated to it.

2.2 – Indicators [2 points]:

Describe the key performance indicators (KPIs) that are crucial for the evaluation of R&D projects. How do these KPIs impact the decision-making process

Describe the Innovation thesis of this proposal.