



ISEG | ULisboa | 2024/2025

Master in Innovation and research for Sustainability

Evaluation and Management of R&I Projects  
Final Exam

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### Instructions

1. You have 2 hours to complete this exam.
2. You can only provide your answers in English.
3. Answers must be typed and handed in by e-mail in a doc or pdf file to: [apcasaca@gmail.com](mailto:apcasaca@gmail.com); [mdferraz@gmail.com](mailto:mdferraz@gmail.com)
4. The exam has 2 sections.
5. You cannot consult external sources.
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**  
**[6 points]**

Please choose three questions to answer:

**Question 1.1 [2 points]** – Understanding your market is key to implement innovation. Please describe the types of market research you can consider to better understand your customer. Provide examples.

**Question 1.2 [2 points]** – Considering market definition, what are the 3 types of market you must consider. Provide examples.

**Question 1.3 [2 points]** – Outline the positive and negative impacts of implementing and Innovation roadmap. Please consider and describe possible externalities.

**Question 1.4 [2 points]** - Discuss the ethical considerations in R&D project management. How do ethical practices affect the sustainability and reputation of an organization?

**Question 1.5 [2 points]** Describe the importance of having a Minimum Viable Project (MVP). How should you define it? Is it necessary in all cases?

**Part II**  
**[6 points]**

**2- Case Background:**

Company Z, a Berlin-based startup founded in 2023, has developed an AI-powered platform that analyzes customer service interactions to optimize response times and satisfaction. The company secured €500,000 in public funding in 2024 and now serves 15 mid-sized e-commerce clients.

Despite early traction, Company Z faces the "valley of death": monthly revenues of €25,000 lag behind operational costs of €40,000, and the burn rate threatens to deplete cash reserves within 8 months.

The team did their calculations, and they must secure a €2M Series A round to scale operations, enhance their AI model, and expand into new markets. Challenges include refining economics, differentiating from competitors and proving scalability to investors.

**2.1 – Value Proposition [3 points]:**

How can Company Z position itself favorably for Series A funding considering value proposition and value capture? What should the company refine at the stage? Be as specific as you can.

## 2.2 – Desing a Business Model [3 points]:

One way to convince investors is with a solid business model that shows you vision, mission and effort.

What phases you must consider, what are the expected outcomes and which of the phases can be the most crucial at this stage, in you opinion?

## Part III [8 points]

You are part of the digital transformation team at a mid-sized logistics company that faces significant challenges in route optimization and fuel efficiency. These issues are critical, as rising fuel costs and environmental regulations are putting pressure on your profit margins and sustainability goals.

Recently, you were approached by a tech startup specializing in AI-powered route planning. Their solution leverages real-time traffic data, weather forecasts, and vehicle telemetry to optimize delivery routes and reduce fuel consumption. The startup claims their system can cut fuel costs by 15% and improve on-time deliveries by 20%. Their market research is thorough, and their value proposition is clear and quantified, but they do not yet have a Minimum Viable Product (MVP) – this is a key consideration for your evaluation.

### 2.1 - Project Valuation [4 points]

The startup requests an initial investment of **€200,000** to develop an MVP over the next **8 months**. Your company's alternative is to invest in government bonds yielding an annual interest rate of **4%**.

- **What is the opportunity cost of this investment?** Show your calculations.
- The first version of the product is expected after **10 months**. Using a discount rate of **7%**, calculate the NPV and IRR for the investment, assuming the following cash flows:
  - Year 1: -€200,000 (investment)
  - Year 2: +€80,000 (cost savings)
  - Year 3: +€100,000 (cost savings)
  - Year 4: +€120,000 (cost savings)Show your calculations.

### 2.2 – Risk Assessment [2 points]

- **What type of risk analysis should you perform in this scenario?** Describe one specific method and, if applicable, provide calculations and assumptions.
- Identify variables suitable for scenario analysis and suggest possible mitigation strategies for each.

### 2.3 – Indicators [2 points]

- **List and explain the KPIs** that are essential for evaluating R&D projects like this one. How do these KPIs influence decision-making?
- **Describe the innovation thesis** for this proposal.

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