# COMM219 Exam F2024 - exam midterm 2024

Innovation Management (Concordia University)

# COMM 219 – Fall 2024
# Innovation Management

## Midterm Exam
## Sections GA, GB, GC, GD, GE, and GI
## Oct 26, 2024 – 09:00 am to 03:00 pm

**Last Name: Colombel**

**First Name: Valentine**

**Student ID#: 40276135**

**Section: GA**

## Important Notes

1. This exam consists of **7 pages and 6 questions** and is expected to take **2-3 hours** to complete. However, you have a **6-hour window** to finish it.
2. This exam accounts for **25% of your final course grade**.
3. All questions are based on **the case study on pages 2 to 3.**
4. You must write your answers directly in this document **from pages 4 to 7.** Answers submitted **in a separate document will not be graded**.
5. Save your completed exam as "**COMM219_YourLastName_YourFirstName**" without changing the file extension (.docx). Failure to follow this naming convention or saving it in a different format will result in a **1-point deduction**.
6. **The use of AI to answer questions is strictly prohibited.** If AI usage is detected, your grade will be nullified.
7. You will not be penalized for minor grammar or spelling errors.
8. **Professors will not answer any questions** during the exam.
9. Once completed, submit your work on **Moodle**.

## Case Study

### Introduction

Innovora Labs is a pioneering non-profit research institute specializing in Generative Artificial Intelligence (AI). Established through a joint venture between ConcordiaTech Systems and JMSBTechnologies, Innovora Labs leverages the complementary strengths of both companies. ConcordiaTech Systems, known for its expertise in AI infrastructure and large-scale technical solutions, provides a strong technological foundation for the partnership. On the other hand, JMSBTechnologies focuses on ethical AI practices and applying AI solutions in sectors such as healthcare and education. Together, the two companies founded Innovora Labs with a shared mission to advance generative AI technologies that produce innovative content, such as text, images, music, and drug compounds, while maintaining a strong commitment to societal benefit and ethical responsibility. Innovora explores AI's potential across diverse sectors, including education, the creative industries, and healthcare.

Generative AI is a rapidly evolving field, enabling machines to generate human-like creations based on data inputs. However, as Innovora faces growing competition from both commercial and academic institutions, it must make critical decisions about which of its three groundbreaking projects to prioritize. Furthermore, Innovora must determine how best to protect its intellectual property (IP) in the competitive AI landscape, balancing societal benefits with competitiveness.

Innovora Labs is known for its deep expertise in AI research and development, its commitment to ethical AI practices, and its ability to apply AI solutions across multiple industries. As it navigates growing competition from commercial and academic players, Innovora continues pushing the boundaries of AI technology, ensuring its innovations align with its institutional goals and its broader mission of benefiting society.

### Proposed Solutions

The first project, focused on personalized learning with generative AI, envisions creating an AI platform that generates personalized educational content for students. The AI would dynamically adjust textbooks, quizzes, and learning paths according to each student's performance and learning style. This project holds great potential to democratize access to high-quality learning tools, especially for underserved regions or students with unique learning needs. While the project could significantly improve educational outcomes and reduce learning gaps, it raises ethical concerns around data privacy, given the extensive data required on students' learning patterns. The financials of the project include an initial investment of $60,000, generating net cash flows of $30,000 annually over a five-year lifecycle.

The second project focuses on the creative industries, where generative AI could be used to create original content, such as graphics, music, and scripts. This AI platform would

enable businesses in entertainment, media, and advertising to produce content more efficiently. Smaller firms would benefit from AI-generated designs that could reduce production costs, helping them compete with larger companies. This project presents substantial commercial appeal, particularly in industries eager to scale up content production, but it also faces significant legal challenges. Intellectual property concerns, particularly regarding copyright, could arise since AI-generated content may inadvertently resemble existing works. Financial projections include an initial investment of $70,000, with expected net cash flows of $40,000 annually over the course of a five-year lifecycle.

The third project aims to apply generative AI to transform healthcare, specifically in drug discovery and personalized medicine. By simulating molecular structures and predicting how they interact with the human body, AI could dramatically reduce the time and cost required for developing new drugs. The project also holds promise in enabling personalized treatments tailored to individual genetic profiles, offering the potential for revolutionizing healthcare on a global scale. However, this project faces complex regulatory hurdles, especially in proving the safety and efficacy of AI-generated compounds, and raises concerns about the ownership of intellectual property for AI-designed molecules. The financials for this project include an initial investment of $100,000, with net cash flows of $50,000 annually expected over a five-year project lifecycle.

**Conclusion**

Innovora Labs stands at a pivotal moment in its journey, facing critical decisions about which project to prioritize and how to protect its innovations in the fast-moving world of generative AI. Each project offers significant potential, whether through societal impact, commercial success, or technological advancement, but also comes with its own set of challenges. The right choice will shape Innovora’s future, both as a leader in ethical AI development and as a sustainable research organization.

In addition to choosing the right project, Innovora must carefully consider its intellectual property strategy. Whether the institute opts for a wholly proprietary, wholly open, or hybrid approach, this decision will affect its ability to maintain a competitive edge, collaborate with the broader community, and drive future growth. Innovora must strike a balance between its ethical mission and its need for long-term sustainability in an increasingly competitive market.

**Questions**

**Q1.** What are the most important core competencies and capabilities of Innovora Labs? List the top three for each. No explanation is required. Please limit your answer to 150 words total (6 points).

Core Competencies

1. research institute specialized in generative AI
2. expertise in AI infrastructure and large scale technical solutions
3. applying ethical AI practices and AI solutions in healthcare and education

Capabilities

1. ability to conduct deep AI research and development
2. skills in applying AI solutions in different fields
3. strong partnership for collaborative research

**Q2.** Propose three screening questions that Innovora Labs could use to evaluate and compare the potential of its three generative AI projects. You are only required to list the questions; no answers are required. Please limit your answer to 150 words total (3 points).

1. Is Innovora likely to be first to market? Is pioneering the technology a desirable strategy?
2. Will the project help Innovora build new capabilities that will allow it to achieve its strategic intent?
3. Will the product require significant new learning on the part of customer?

**Q3.** ConcordiaTech Systems and JMSBTechnologies formed a joint venture to establish Innovora Labs. List three key pros and three key cons of this partnership. Please limit your answer to 150 words total (3 points).

Advantages

1. learning from partners
2. ressource and risk pooling
3. increase flexibility by reducing its asset commitment

Disadvantages

1. strategic misfit, not the same objectives
2. one firm may lack some capabilities, slowing the development of the innovation
3. low control over the innovation

**Q4.** Innovora Labs has decided to pursue the third project, which focuses on applying generative AI to transform healthcare. Using a discount rate of 6%, calculate the Net Present Value (NPV) of this project and determine the break-even point. Briefly explain how these values help evaluate the financial viability of the project. Please limit your explanation to 100 words (3 points).

1. Project NPV: 110618.182
2. Break-even point: Year 3
3. Explanation: After the thrid year, the project will become profitable for Innovora having a cumulative net present value of $33 650.592. At the end of the five-year project life-cycle, it will generate a total of $110 618.18.

**Q5.** Innovora Labs has decided to pursue the third project, which focuses on applying generative AI to transform healthcare. Should the institute adopt a wholly proprietary, wholly open, or partially open strategy to protect its innovations in this project? Select one strategy and briefly justify your choice. Then, based on the strategy you recommend, identify and explain which specific innovation protection mechanisms (e.g., patents, trademarks, copyrights, or trade secrets) Innovora should implement and why. (5 points)

Protection Strategy Choice (select one):

- ☒ wholly proprietary strategy
- ☐ wholly open strategy
- ☐ partially open strategy

Justify your choice (limit to 50 words): Briefly explain why you selected this strategy for the project.

Using generative AI for drug discovery and personalized medicine should be a highly protected innovation as it would harm the population if such innovation would fall into the hands of people with not enough level of expertise.

Protection Mechanisms (limit to 200 words): Describe the specific protection mechanisms Innovora should implement and justify why each is relevant to your chosen strategy. Innovora may use more than one protection mechanism.

Innovora should use patents to protect its innovation itself and copyrights for the AI generated solutions.

First, the innovation in the wholly proprietary system needs to be protected so that only the developers can have access to it. Innovora will have exclusive rights for 20 years and obtain a competitive advantage by preventing others from using the patented technology without permission. However, the application process is often time-consuming and expensive, 2 to 5 year process application and between around $1500 in filing fees and $5000-15000 in attorney fees.

Once the innovation is protected, Innovora must protect the drugs discovery and personalized medicine generated by AI. Therefore, the use of copyrights will protect original works by granting the generated AI, which in this case will be the developers of the AI,  exclusive rights to use and distribute their work, lasting the creator’s lifetime plus an additional period (often 70 years).

In conclusion, by using patents and copyrights Innovora ensures long-term protection and exclusivity for both its proprietary AI innovations and AI-generated healthcare solutions, securing its competitive advantage and safeguarding valuable intellectual property.

**Q6.** Why do you think many innovation projects in the field of generative AI, like those being developed by Innovora Labs, may struggle to generate an economic return? Drawing on concepts from class discussions and materials, provide reasons why Innovora could face challenges when bringing its AI solutions to market. Please limit your answer to 250 words (5 points).

Many innovation projects in the field of generative AI may struggle to generate an economic return because the protection for their innovation makes it hard to generate revenues, their innovation is too novel for the public.

The protection strategic choice can have an important impact to generate an economic return. In the case of Innovora, using a wholly proprietary system unables other developers to develop components that interact with the system, which could help Innovora in the improvement of its technology. Therefore, Innovora bears a higher development cost which will reflect in the final price. The higher cost will then make the adoption rate slower. By having a slow rate of adoption, companies have difficulties generating revenues to make their investment profitable and more accessible.

Another factor influencing an economic return is the openness of the public to a new innovation. When an innovation tackles new issues, people who are unfamiliar might appear septical. For example, if Innovora were to use AI to discover new drugs and personalized medicine, some people might lack confidence toward the fact that AI will monitor their health. Having artificial intelligence generates solutions may not always be perfect, the risk might slow down the rate of adoption. That is why we still need the use of real people to verify those experiences.

In conclusion, the lack of consumer’s confidence and awareness toward a new innovation and the strategic protection choice are factors that make many innovation projects in the field of AI struggle to generate economic return.