



THE UNIVERSITY OF
SYDNEY

Room Number

5418

Seat Number

13

Student Number

490051481

ANONYMOUSLY MARKED

(Please do not write your name on this exam paper)

CONFIDENTIAL EXAM PAPER

This paper is not to be removed from the exam venue

Computer Science

EXAMINATION

Semester 1 - Final, 2025

INFO5992 Understanding IT Innovations

For Examiner Use Only

EXAM WRITING TIME: 2 hours

READING TIME: 10 minutes

EXAM CONDITIONS:

This is a RESTRICTED OPEN book exam - specified materials permitted

MATERIALS PERMITTED IN THE EXAM VENUE:

(No electronic aids are permitted e.g. laptops, phones)

Lecture slides only; typed/handwritten notes are not allowed; chapter tags are allowed.

MATERIALS TO BE SUPPLIED TO STUDENTS:

None

INSTRUCTIONS TO STUDENTS:

- Provide the answers within the boxes provided.
- Use the extra sheets at the end of this exam to provide further answers; use an appropriate pointer to the answers provided.
- Materials allowed:
 - Lecture slides only (you can print multiple or single slides on each page)
 - Typed/handwritten notes on printed lecture slides are not allowed
 - Chapter tags are allowed

Q	Mark
1	
2	
3	

Total _____

Please tick the box to confirm that your examination paper is complete.



Section 1 – Short Questions/Answers (25 Marks)

Question 1.1: Can Generative AI be considered a General Purpose Technology (GPT)? Support your answer with at least three arguments. (5 Marks)

We need use 4 properties of GPT to Analyze it

- Pervasively: ~~Yes~~. ~~Most~~ sectors can use Generative AI such as education, ~~but~~ in Not sure. Some Certain high tech area, it might not be useful
- Improve over time: Yes. Generative AI is becoming more and more powerful, such as GPT-1 To GPT4.5.
- Spaw Innovation: Yes, people can certainly use generative AI to help them innovate. Such as ask it to help them write code
- Foundamentally Disruptive: It's disruptive which never appear before and almost replace traditional search engine
It's not fundational, not every Innovation can use it, such as certain high technich (i.e. nuclear bomb)

In conclusion, Generative AI is on the way to become GPT

~~Question 1.2:~~ What is the role of Startups in the IT Innovation Ecosystem? Provide at least two reasons for the survival of a startup in an IT Innovation Ecosystem. (5 Marks)

- It bring new idea to the market. And encourage ~~other~~ existing IT company to produce better services.
- Successful startup company can encourage more talent people to build a start up company which may potentially increase the chance to find innovators

2

Question 1.3: Imagine a startup (any industry adopting any technology) in the "Innovators" phase of the Technology Adoption Lifecycle Model and assuming the dominant design already exists; what **factors** should this startup consider when choosing the dominant design? (5 Marks)

Since there is a dominant design, they should focus more on how to become disruptive. That's focus on low end or new market or both. The reason behind this is that incumbent ~~who~~ always focus on high profit group. That's sustaining innovation. So they may ignore those customer who are over-served or need not being addressed. Then start-up company will have chance. Because they can attract those customer to get profit. One example could be Xiaomi. before it, iPhone already ~~have~~ ^{form} the dominant design. However, Xiaomi can still make money because ~~of~~ ^{above} strategy. (Innovation Dilemma)

4

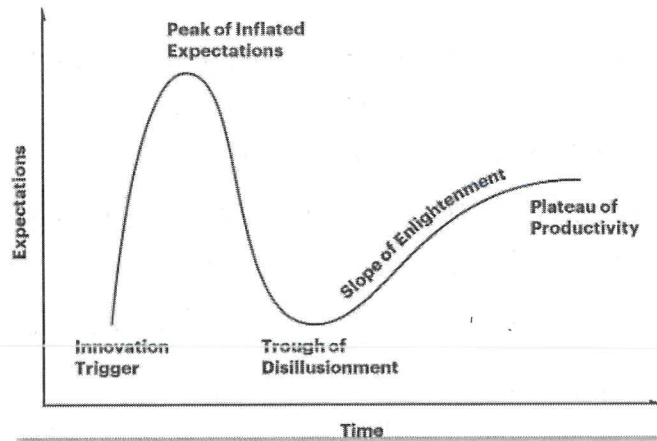
Question 1.4: An AI-based company in the area of Generative AI face several challenges (e.g., scalability and adaptability, etc.) because of many other models (e.g., Google's Gemini, which is an AI model based on a Large Language Model) in the market. What steps can this company take to diffuse its innovation successfully? Provide at least two initiatives. (5 Marks)

First. It can consider about use API to promote their product. If they provide free API, then other people does not need to learn how to use its product, instead their API will much easier be adopted.

second, it can consider about 'open source' strategy. That's given license to its Algorithm. Individual can use it freely. But business need to get allowed before use it. The benefit is : if their algorithm is pretty good, then whole IT community may know it very soon. (Such as in the Hugging face platform with many 'like')

2.5

Question 1.5: The diagram below shows the Technology Hype Cycle. What might be the consequences if a company adopts a technology at the "Innovation Trigger"? Provide at least two consequences. (5 Marks)



In this stage, it means 'high expectations met with low maturity'.

The good consequence: You are the "pioneer" in this new technology, which means you have more time to accumulate experience.

The bad consequence: You might not get enough money. Since stakeholders think you cannot achieve their expectations, because there is often no usable product exists.

. In addition, you do not know whether this tech can earn money in the future. That's 'Commercial viability is unproven'.

Section 2 – Long Questions/Answers (35 Marks)

Answer the following questions:

- 2 **Question 2.1:** Explain “competence-enhancing” and “competence-destroying” during the technological discontinuity for a startup. (6 Marks)

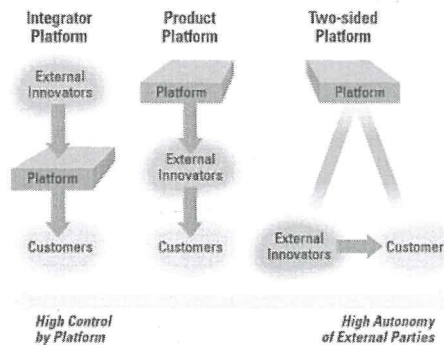
Competence-enhancing: through competition, more products design might appear which potentially encourage the appear of dominant design

Competence-destroying: it destroy old product, such as nowadays phone replace Nokia

- 4 **Question 2.2:** During technological discontinuity, is it necessary for a dominant design to emerge? What might be the situation when a dominant design does not emerge? (6 Marks)

No. Consider about the plot “Design Dominance and Technology Cycles”. Between Tech Discontinuity and Dominant design, there is a phase called “Era of Ferment.” In this phase, different company give their own solution because the market is uncertain. Though competition, the most acceptable design will gradually become the dominant design. For example, ~~every~~ smart-phone does not have key board, but older one have (Nokia).

✓
9 **Question 2.3:** The following diagram shows different forms of platform businesses. Which of the following forms welcomes external innovation more than the others? Provide at least three reasons to support your argument. (10 Marks)




I think Two-sided platform is the most welcome one.

- It has the least control of the platform, which means External Innovator can do whatever they want (legally).
- There are more communication between innovator and customer, which means they potentially get bigger idea pool. (They have channel to direct communicate with customer)
- Two-sided platform completely match the benefits of platform business — "bring together producer and consumer". Comparing with other two, it allows more 'open source'. Such as in Github, everyone can contribute to a project.

✓ **Question 2.4:** What is a user innovation? How can user innovation offer better diffusion of innovation compared to producer innovation? Provide at least two reasons. (6 Marks)

User Innovation is the idea that users and consumers are more innovators of new products than suppliers. It often happens when existing product cannot satisfy user's expectation.

It's better because of Reason 1  Some requirements are only apparent when user are using the product

- User insights are useful. ~~Only~~ user know the pain better than the producer. Such as a programmer find one tool react very slow, then he will try to customize it

- There are some "lead User" exists. They ~~are very~~ have many experiences, know more ~~about~~ in certain area. Hence they might develop better tools than producer

So Reason 1 is their tool is much more suitable, it can do something more because it has industry experience to support ~~it~~.

"Reason 2" is ~~the~~ ^{user} product can spread fastly among their community, which means more user think those user's innovation is better. It might because both of them are user, so other user is easily adopt user's innovation.

Question 2.5: Explain the business model of the platform ecosystem with the help of an example. (7 Marks)

There are 4 main characters in platform Ecosystem: Producers, Consumers, Provider, owners

There are 9 blocks of a business model (I will illustrate later). business model also describe how an organisation creates, delivers and capture Value.

I will use Taobao as an example to build the business model canvas

Customer segment: buyer, seller

Value Proposition: Provide convenient, trustful online shopping service

Channel: online platform mainly

Customer Relationship: Personal Assistance, Self-service, Automated Services, Communities (comments of product).

Revenue Streams: Advertising, Ranking product, subscription fee (VIP get better service)

lending (Provide Huabei service)

↳ similar to afterpay but it also own by Alibaba

Key activities: Payment Processing, platform development, customer support

Key Resources: platform technology. Human Capital { seller: big company set digital branch on Taobao
Data: collect many user data can help seller analyze user behaviour
buyer: many user prefer to use Taobao than other platform

Key Partnership: the payment processor, credit card company, bank, ~~seller~~ seller (both individual and non-individual)

Cost Structure: platform maintain fee, employee salary, advertisement, customer support.

Section 3 – Scenario-Based Questions (40 Marks)

"The Apple Vision Pro is a mixed-reality (MR) headset developed by Apple. It creates a "spatial computing" experience, allowing users to interact with digital content in real-world environments. It features ultra-high-resolution displays, advanced eye and hand tracking, and a custom Apple silicon chip to power immersive applications—from productivity and entertainment to communication and design. By replacing traditional screens with a more natural and intuitive interface, the Vision Pro aims to redefine how users work, collaborate, and consume media, positioning itself as a potential disruptor in computing and wearable technology."

Answer the following:

Question 3.1: What are the possible revenue streams for Apple Vision Pro for Apple? You need to mention the customer segment for each revenue stream. Mention two revenue streams. (5 Marks)

- Asset Sale: Apple can sell this product to customer to get revenue
– the corresponding customer segments: Niche Market, since most customer will not adapt it easily due to the price (see adoption life cycle plot) so only certain kind of customer will pay for it
- Potential investor: Since this is new tech; ~~which is in the innovation stage~~
~~stage~~, so some investor might think this tech can earn money in the future, so they might to invest Apple
– the corresponding customer segments: Investor, or Some company
~~they~~ want to invest and get high profit in the future
who

Question 3.2: Since VR headsets are modern technologies, what uncertainties might a company face when developing this MR-based product? Also, which project management approach is best suited when there is much uncertainty? (5 Marks)

Uncertainty: Technology difficulty: company does not know how long they can achieve the desired performance

• Customer adaption: Company does not know will customer like this product. And they do not know what is the customer really want to have for this new product

• Other company adaption: They do not know whether other company want to participate in the ecosystem. Such as windows and software developer

Agile

~~Agile~~ is the best project management. More specific, I think SCRUM might be the best. It not only make sure high speed development, such as user stories, daily meeting, incremental development. But also encourage creativity. I think creativity is very important, without it company might not be able to create something disruptive (never see it before).

~~Me~~

is better

Organic Structure ✓: less restriction
more chance to create
free-flowing

8

Question 3.3: What are the disadvantages faced by Apple, a large corporation, when competing in a new, innovation-driven technology market? In your response, include the following:

1. Identify two disadvantages Apple may face as a big company entering a space where innovation is critical
2. Explain each disadvantage clearly (10 Marks)

1. R&D efficiency may decrease due to loss from managerial control.
 - Apple is a very big company, there are many departments, and each department works for different components
 - It's very difficult for a manager to connect those departments together to innovate a new product
 - The main reason might be "Standardisation" or "centralisation" company structure (i.e. Mechanistic Structures)
 - ~~Every project need to do with process (apply on certain level) and~~
 - Here R&D not mean to produce something they already know, but to mean they need to become more creative. ~~However the rigid~~
2. Most worker already familiar with existing product, such as iPhone, Hence their Innovation idea might ~~signifi~~ significant affect by existing product. ~~However, most company will not to kick off these market as they still very useful for developing~~ And these kind of innovation can not bring something new which could further lead to customer dislike the product.

8

Question 3.4: A traditional model (such as the waterfall model) may not be a good choice for delivering an MVP. Justify your answer for selecting the Agile development method. (10 Marks)

• MVP: collect the max amount of validated learning about customers
 with the least effort
 a new product which allows a team

• Disadvantage of Traditional:

a. The project takes time, so the requirements at the time of capture may be different from those at the time of delivery

b. Some requirements are only apparent when users are using

c. It takes too long to get customer validation of the product

d. less connect with customer

• Advantage of Agile:

it can solve these problem

• In each iteration, the product can be used (Incremental Develop)

• which means company can let customer use those product and get feedback in time which solve c and d

• The product can be optimized in later iteration according to customer feedback, so it also solve a and b

As a result, when we significantly depend on customer's requirement, the better choice is to connect with customer. So Agile is a better choice.

9 **Question 3.5:** From the perspective of the Value Proposition Pyramid, what value does the Apple Vision Pro offer to its customers? (10 Marks)

You are required to identify a total of five values provided by the Apple Vision Pro:

- 2 Functional values
- 2 Emotional values
- 1 Life-Changing value

For each value, include the following:

1. The name of the value (as defined in the Value Proposition Pyramid)
2. The customer segment that benefits (choose from the list below)
3. A brief explanation of how or why it benefits that customer segment

Assume the following are the customer segments:

1. Creative Artists -
2. Enterprises -
3. Consumers -
4. Developers -
5. Educators -

2 Functional:

- ① Sensory Appeal: Creative Artists, Developers,
they never use this kind of virtual experience before
- ② Connects: All segments
they can discuss with each other about how to use VR, so
they can even make friends with each other.

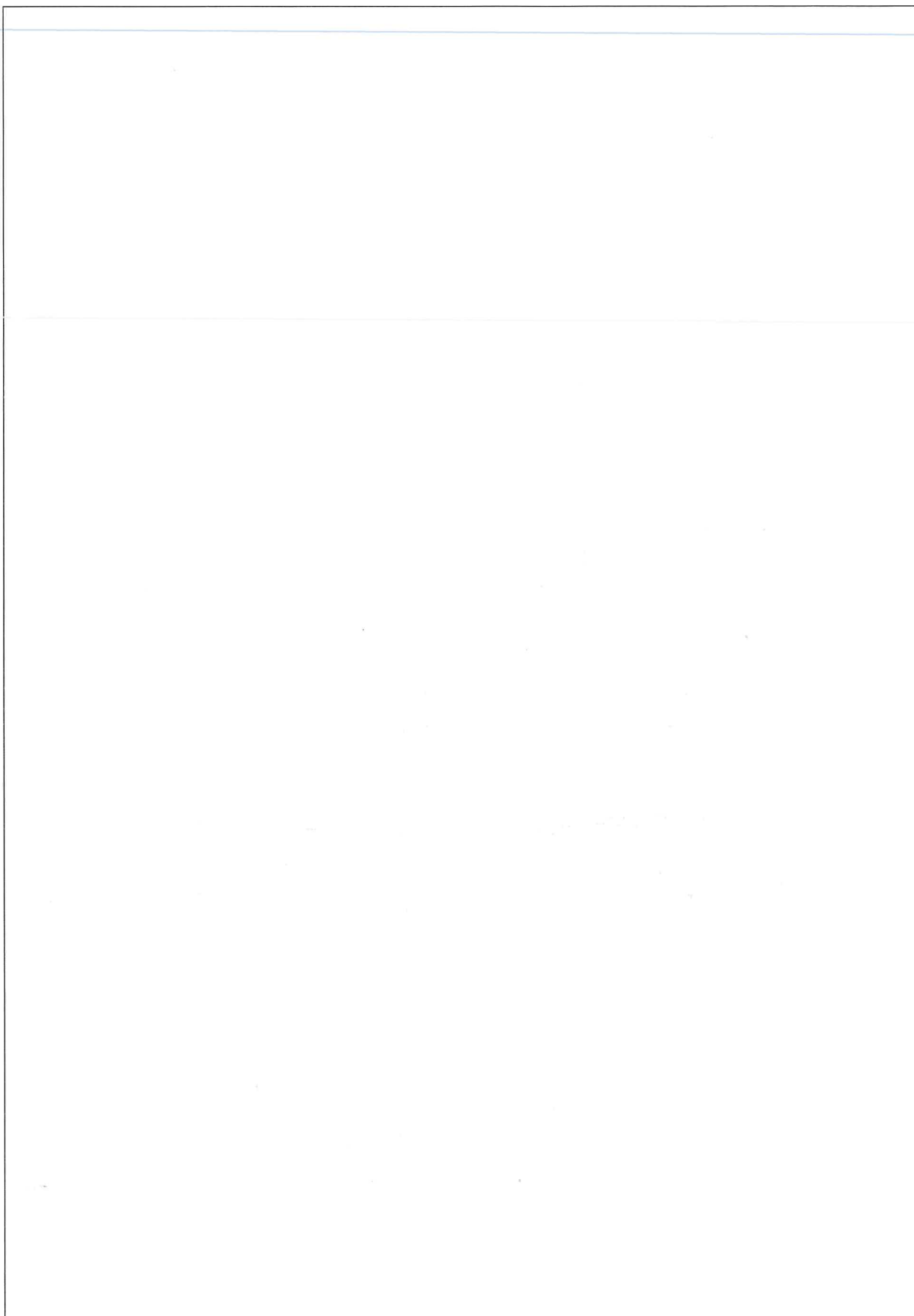
2 Emotional:

- ① ~~Design & Aesthetics~~ Attractiveness: Consumer; people who buy this can be regarded as rich; many people think it's cool to own it
- ② Fun & Entertainment: Consumer; it's new experience allow consumer enjoy. such as watch VR videos or play VR games. People cannot do this without VR device

1 Life-changing Value:

- ① motivation: Educators, Creative Artists; they have new tools to build their own 'products'. Just like iPad, before it appears, they can only use pen and paper, but after it, ~~students~~ people find iPad can do ~~the~~ better (such as without eraser the job to withdraw mistake) and easier

Additional pages



Additional pages

Additional pages

END OF EXAMINATION