COMP1100 — Week 1 Notes

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Introduction to Innovation

Week 1 seminar. Course logistics are in comp1100[1].

Outline

1. Course overview and expectations
2. What innovation is, and why we need a process
3. The Lean Startup and customer development
4. Customer discovery, step by step

[1] courses/comp1100/comp1100.pdf

5. Divergent thinking; the project challenges

What is innovation?

See innovation[2] — several definitions, Drucker on value being what the customer gets out (not what the supplier puts in), the product-failure table that makes "no market fit" a 35% risk, and the four shifts from development to innovation.

The four shifts, briefly: from a client to a **market segment**; from a system to a **value proposition**; from development to **experimentation**; from a requirements specification to a **Minimum Viable Product**.

The Lean Startup

See lean-startup[3] — the customer development process (discovery → validation → creation → building), the search/execution split, the pivot, and Paul Graham on the mistake you are going to make.

Customer discovery

See customer-discovery[4] for the full four-step process, the user/customer distinction, the medical alert system worked example, early adopters, and the seven customer development heuristics.

The single sentence to carry out of week 1 is heuristic #1: **there are no facts inside your building, so get outside.**

Divergent thinking

When generating ideas: don't challenge or criticise; quantity, not quality; don't analyse or organise (but do record and draw). *Then* identify significant themes and refine. See innovation[5].

The challenge

> Improving the student experience at UQ (and beyond?)

Teams pick one or two from the project challenges.

[2] courses/comp1100/innovation.pdf
[3] courses/comp1100/lean-startup.pdf
[4] courses/comp1100/customer-discovery.pdf
[5] courses/comp1100/innovation.pdf

Key takeaways

- Innovation = creating value for someone.
- Failure is often because we do not understand our market.
- Success is more likely if we get out of the building.
- Innovation process = generate and test ideas early fail early.
- Failure = opportunity to learn.

Homework

- **Decide this week** whether you want to do this course — and if not, unenrol.
- Read the course overview.
- Read Chapter 1, Introduction to innovation.
- Read the chapter on Customer discovery.

Next week

Seminar: 2025-08-04-business-model-canvas[6]. Studio: team allocation and team dynamics.

Reference material

Customer Discovery

> **Customer discovery** is the process of turning an initial idea or vision about a market or customers into a set of *facts*. The process tests whether the business model for a company solves real customer problems, and whether the product features fit those customer problems.

It is the first stage of the customer development process in lean-startup[7], and the stage COMP1100 spends nearly all its time in — all three assessment submissions are iterations of it.

[6] courses/comp1100/2025-08-04-business-model-canvas.pdf
[7] courses/comp1100/lean-startup.pdf

The four-step process

```
        1. Define hypotheses
                ↓
        2. Test the problem
                ↓
        3. Test the solution
                ↓
   4. Verify, pivot, or refine  →  (customer validation)
```

The loop repeats. Each pass turns more of the business-model-canvas[8] from hypothesis into fact.

Step 1 — define our hypotheses

The initial hypotheses *are* our vision. Write answers to:

1. What are our customers' top problems?
2. How does our idea help to solve these problems?
3. What would a day in the life of a customer look like before and after our product?

These are **guesses or assumptions at best** — which is exactly why they get tested rather than built on.

The step also includes sketching a vision. This means a rough sketch, not a polished rendering.

Step 2 — test the problem

Gather data to **refute or confirm** our hypotheses about the problem. This is where the distinction that runs through the whole course appears:

	Who they are
User	People who *use* a product
Customer	People who *pay for or approve* a product

They are frequently not the same people, and a hypothesis needs to say which it's about.

[8] courses/comp1100/business-model-canvas.pdf

Step 3 — test the solution

Gather data to refute or confirm hypotheses about our *solution*. The thing being sought is **product/market fit** — the match between the customer's problems and needs on one side, and the product's features and value proposition on the other.

> "Ideas are like babies because everyone thinks theirs is cute, therefore be objective when judging your own ideas."
>
> — Tina Seelig

Step 4 — verify, pivot, or refine

Refine the product, pivot the strategy, or (rarely) rethink the vision. See lean-startup[9].

A worked example: the medical alert system

The running example is an emergency alarm for older people living alone, with a speaker, microphone, emergency button, well-being check button, status light and a wireless transmitter.

Initial hypotheses:

1. Older people want to be safe.
2. Families of older people want to know, on a daily basis, that their older family member is safe.
3. Older people want to be able to initiate a call for help and cancel any call for help.
4. Older people want to maintain their independence/autonomy.
5. Older people want to be cared for.
6. Older people do not want to have to press the green button each day to let the care company know that they are alive.
7. Older people do not want to wear a visible (and ugly!) emergency alarm around their neck or wrist.

Hypothesis 1 is about both users and customers, while hypothesis 2 is mainly about *customers* — the family, not the user.

After testing the problem, hypothesis 5 was refuted outright and 7 was partly refuted, producing **new hypotheses**:

- 5. Older people want to be cared **about**. *(the original said "cared for" — a small wording change carrying a completely different product)*
- 8. Some older people wouldn't mind wearing a wireless transmitter if it was not visible to others.

[9] courses/comp1100/lean-startup.pdf

- 9. Older people wanted to be in touch with **their family members**, rather than a service provider.
- 10. Older people would prefer a medical alert that allowed them to be mobile — the existing alarms were attached to a phone line and the transmitters had short range.

This is the whole method in miniature: the product that survives contact with real users is not the one that was sketched.

Early adopters

Not all of the market matters at the start. The adoption curve:

Segment	Share
Innovators	2.5%
Early adopters	13.5%
Early majority	34%
Late majority	34%
Laggards	16%

The first release targets early adopters, not the majority.

Customer development heuristics

1. **There are no facts inside your building, so get outside.**
2. Develop for the few, not the many.
3. Early adopters make your product.
4. And they know more than you.
5. Focus groups are for big companies, not startups.
6. Surveys don't give insight compared to interviews — follow-up questions are difficult.
7. The goal for release 1 is the **minimum feature set for early adopters**.

Heuristic 6 is the reason the course's assessment requires recorded, transcribed interviews rather than a survey: you cannot ask "why?" to a form.

See value-proposition-canvas[10] for the ground rules on actually conducting those interviews, and test-cards-and-learning-cards[11] for the format the hypotheses and results are written in.

[10] courses/comp1100/value-proposition-canvas.pdf
[11] courses/comp1100/test-cards-and-learning-cards.pdf

Innovation and Value

What is innovation?

The week 1 seminar asked the room, laptops closed, and collected these answers:

- Solving someone's problems or trying to improve their situation
- Creating value for a client or customer
- Improving something that exists with a different mindset
- Creating a new solution to a problem that changes how things are done
- Creating meaningful items that the customer wants to pay for
- Improving upon an existing solution

The common thread — and the course's one-line definition — is **innovation = creating value for someone**.

Value is defined by the customer, not the maker

> "Quality in a product or service is not what the supplier puts in. It is what the customer gets out and is willing to pay for. A product is not quality because it is hard to make and costs a lot of money, as manufacturers typically believe. This is incompetence. Customers pay only for what is of use to them and gives them value. Nothing else constitutes quality."
>
> — Peter Drucker

This is the assumption the whole course rests on. Effort, cleverness and cost do not create value; only what the customer gets out does. It's also why the process starts with customer-discovery[12] rather than with building.

Why we need an innovation process

Because products and businesses fail, and mostly for reasons that have nothing to do with the code:

Failure reason	Percentage
Cash flow	38%
No market fit	35%
Competition	20%
Business model	19%
Regulatory challenges	18%

[12] courses/comp1100/customer-discovery.pdf

Failure reason	Percentage
Pricing issues	15%
Team	14%
Timing	10%

(The percentages exceed 100% because failures usually have several causes.) The single most addressable item on that list for a student team is **no market fit** — 35% of failures come from building something nobody wanted.

The solution the course proposes: **focus on the customer**, and answer three questions in order.

1. What are their problems?
2. Do we have a solution? Can we make one?
3. Will they pay for our solution?

From development to innovation

Four shifts distinguish an innovation process from ordinary product development:

	From	To
1	A client	A market segment (customers)
2	A system	A value proposition
3	Development	Experimentation
4	A requirements specification	A Minimum Viable Product

Each shift has its own machinery later in the course: market segments and value propositions in business-model-canvas[13] and value-proposition-canvas[14], experimentation in experimentation[15], and the MVP in minimum-viable-products[16].

Divergent thinking for creative design

When generating ideas rather than evaluating them:

- **Don't challenge or criticise.**
- **Quantity, not quality.**

[13] courses/comp1100/business-model-canvas.pdf
[14] courses/comp1100/value-proposition-canvas.pdf
[15] courses/comp1100/experimentation.pdf
[16] courses/comp1100/minimum-viable-products.pdf

- **Do not analyse or organise** — but do record and draw.
- Then **identify significant themes**, and **refine**.

The separation matters: the generating phase and the judging phase are different activities, and mixing them kills the first one.

Key takeaways

- Innovation = creating value for someone.
- Failure is often because we do not understand our market.
- Success is more likely if we **get out of the building**.
- An innovation process means generating and testing ideas early, so we **fail early**.
- Failure is an opportunity to learn.

The Lean Startup Methodology

The methodology the course runs on, from Eric Ries's *The Lean Startup* and Steve Blank's customer development work.

The customer development process

Blank splits building a company into two halves — **search**, then **execution**:

Phase	Stage	What happens
Search	Customer discovery	Turn the vision into facts — do these customers have this problem?
Search	Customer validation	Confirm there's a repeatable, scalable sales model
Execution	Customer creation	Create end-user demand and drive it into the channel
Execution	Company building	Transition from a search organisation to one that executes

A **pivot** loops back from validation to discovery when the facts don't support the model.

COMP1100 lives almost entirely in the **search** half, and mostly in customer discovery — the design end rather than the entrepreneurship end. See customer-discovery[17].

[17] courses/comp1100/customer-discovery.pdf

Why the search half is the hard part

> "What you will get wrong is that you will not pay enough attention to your users.
>
> You will make up some idea in your own head that you will call your 'vision', and you will spend a lot of time thinking about your vision. In a cafe. By yourself. And build some elaborate thing without going and talking to users, because that's doing sales, which is a pain in the ass, and they might say no.
>
> You will not ship fast enough because you're embarrassed to ship something unfinished, and you don't want to face the likely feedback that you will get from shipping. You will shrink from contact with the real world, contact with your users. That's the mistake you will make."
>
> — Paul Graham, Y Combinator

Every mechanism in the course is designed against this failure mode: test cards force a hypothesis to be falsifiable before you build, MVPs force shipping before it's finished, and studio deadlines force contact with real people.

Verify, pivot, or refine

After each round of experiments there are three moves, at escalating cost:

Move	What changes
Refine	The **product** — adjust features within the same strategy
Pivot	The **strategy** — same vision, different route to it
(rethink)	The **vision** — the deepest and rarest change

The ordering is the point: refining the product is cheap, changing strategy is expensive, and abandoning the vision is a last resort. See experimentation[18] for how the decision gets made from evidence rather than mood.

[18] courses/comp1100/experimentation.pdf

Inspiration and sources

The seminar names its sources explicitly:

- **Tina Seelig** — *inGenius: A Crash Course on Creativity*
- **Steve Blank** — *The Four Steps to the Epiphany*, *The Startup Owner's Manual*
- **Alexander Osterwalder** — *Business Model Generation* (the origin of business-model-canvas[19] and value-proposition-canvas[20])
- **Eric Ries** — *The Lean Startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*

[19] courses/comp1100/business-model-canvas.pdf
[20] courses/comp1100/value-proposition-canvas.pdf