

AI In Innovation

Week 5 – LECTURE
CUSTOMER DISCOVERY



Which is the correct answer?

You have 12 red socks, 12 white socks, and 12 black socks in your drawer. Without looking, how many socks do you need to pull out of the drawer to ensure that you have at least one matching pair?

- (A) 3
- (B) 4
- (C) 9
- (D) 12



Module: Week by Week Structure

PART 1: AI FUNDAMENTALS

Week 1: AI in Innovation: History, Present, Future

Week 2: AI + Humans: ethics, impact

Week 3: Effective AI Innovation

PART 2: DISCOVERY

Week 4: Market Research & Opportunity Mapping

Week 5: Problem Discovery & User Needs Analysis

Week 6: Consolidation Week

PART 3: BUILDING, TESTING & IMPLEMENTING

Week 7: Building Ideas: Ideation & Solution Building

Week 8: Distributing Ideas - Marketing, Design & Creative

Week 9: Testing & Evolving Ideas - User Testing

Week 10: Affecting Change - Implementing AI Effectively

PART 4: ASSESSMENT

Week 11: Group Assessment – Learning Conversations

Week 12: Individual Assessment – Learning Conversations



We're almost at the end of the first half of this unit....

Where do we want you to be by the end of this week?

From persona to solutions

A clear process to go from user research to ideas

1

Understand the user



Who are we designing for?

Synthesize research into a clear persona, including their goals, context and pain points.

2

Define the problem



What is the key problem?

Identify and frame the specific problem for this persona, based on research evidence.

3

Set the innovation goal



What would a better outcome look like?

Define a clear, measurable goal that describes the positive change we want to achieve for this persona.

4

Explore solutions



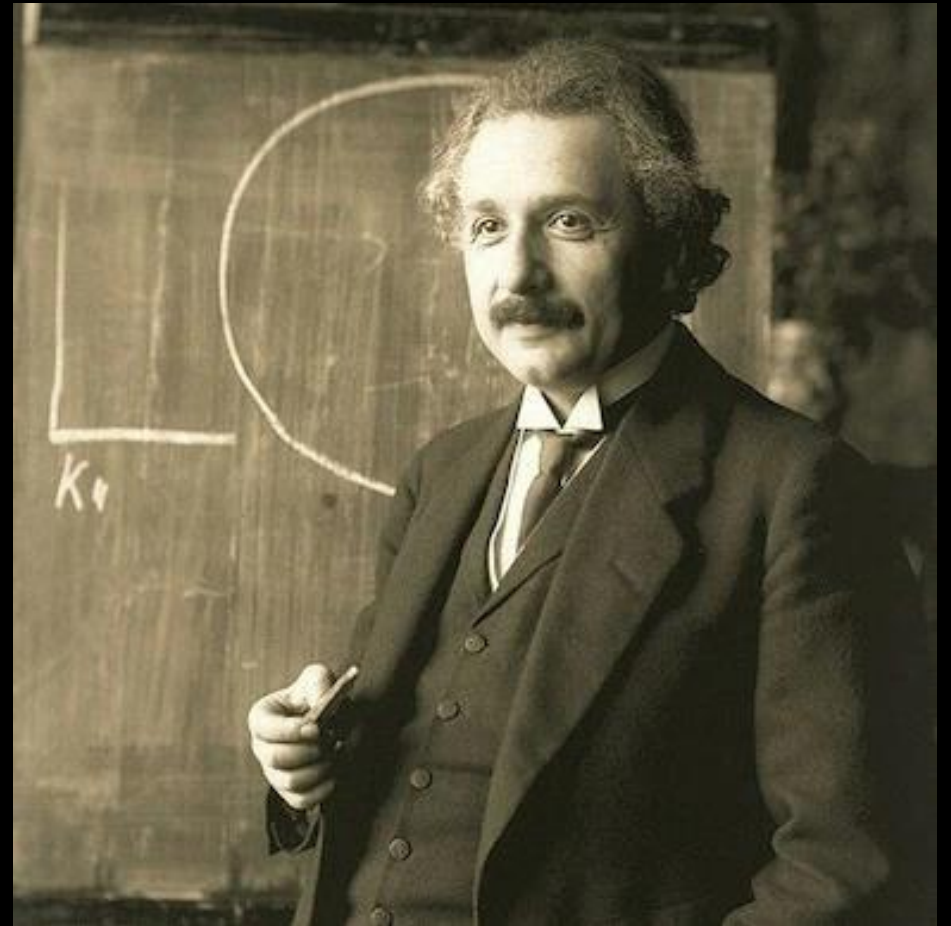
What different approaches might achieve that?

Generate and consider a range of potential solutions that could help us reach the innovation goal.

Einstein allegedly said:

"If I had an hour to solve a problem; I'd spend 55 minutes thinking about the problem...

and 5 minutes thinking about solutions".



Our first goal is to solve a problem for a specific persona

Personas are a useful way of making sense of user research.

They...

- Force you to thoroughly investigate your user/ customer
- Inspire insights and further directions of investigation
- Allow the entire team to understand the goals
- Allow you to 'become' the user – “What would Sabba/Bea/Simon do?”
- Anchor stories and bring them to life
- Design for people, not data (and not yourself)

How might you synthesise user research into a user persona?

Evidence-Driven Personas

Personas must reflect real behaviour and constraints, not fiction or stereotypes. They emerge from user research insights – by labeling themes, and clustering goals, contexts, and pain points.



Collect

Interviews, behavioural traces, and consented analytics. Transcribe and auto-label themes using AI tools.



Synthesise

Cluster goals, contexts, and pain points. Validate quickly through surveys or follow-up conversations.



Avoid

Stereotypes, over-generalisation, and unchecked tool hallucinations. Demographic proxies should only be used if directly relevant.



Checklist

Ensure data sufficiency, triangulation across sources, and a validation loop with real users.

End User: Laura Kimpton



Age: 34

Location: London

Profession: Senior
Communications Officer, GCS

Salary: £50k

Quote

"I wish I had a tool to help me quickly write and sign-off guideline-approved comms"

Pain Points

- **Fragmented sources:** guidance scattered across tools
- **Approval bottlenecks:** multiple reviewers; late policy changes invalidate drafts
- **Risk & trust:** fear of errors, out-of-date stats, or "hallucinated" content from AI tools
- **Time pressure:** reactive comms, weekend spikes, ministerial edits at short notice

Goals

- Faster, clearer citizen-facing comms
- Consistency with GCS style, ministerial lines,
- Reduce rework and approval timelines and evidence
- Improve accessibility

Motivations

- Improved public service
- Professional pride
- Career progression
- Reduction in inefficiency to make work less frustrating

Current solutions

- Manual checks of past guidance
- Drafts in Word, then circulates for edits by press office
- Uses checklists for tone, accessibility, and sign-off
- Tracks versions in long email chains
- Keeps a personal folder for future reuse

This data categorised into clear criteria helps us focus our goals.

We can now solve a particular problem for a well-defined persona.

What makes an effective problem statement?

A well-framed problem directs your entire approach to solving the innovation challenge.

Effective Problem Statements

Effective problem statements contain four core elements: they are **specific**, **user-centric**, **measurable**, and **actionable**.

1

Specific

Name the persona, task context, and pain point clearly. Avoid vague language or jargon.

2

User-Centric

Focus on the user's experience and constraints, not on technology or internal processes.

3

Measurable

Attach an observable outcome: time saved, error rate reduced, detection rate improved.

4

Actionable

Include the root cause and consequence, so teams know where to intervene.

Good vs Bad: Problem Statement Examples

Bad

"Users struggle with video editing."

Good vs Bad: Problem Statement Examples

Bad

"Users struggle with video editing."

Issues:

- No specific persona or task context
- No measurable outcome
- No root cause or consequence
- Too vague to direct design

Good vs Bad: Problem Statement Examples

Bad

"Users struggle with video editing."

Good

"For solo content creators publishing weekly videos, adding accurate captions manually takes 90+ minutes per video due to lack of automated tools, leading to delayed publication and reduced accessibility. A successful solution would reduce captioning time to under 10 minutes whilst maintaining 95%+ accuracy."

Issues:

- No specific persona or task context
- No measurable outcome
- No root cause or consequence
- Too vague to direct design

Good vs Bad: Problem Statement Examples

Bad

"Users struggle with video editing."

Issues:

- No specific persona or task context
- No measurable outcome
- No root cause or consequence
- Too vague to direct design

Good

"For solo content creators publishing weekly videos, adding accurate captions manually takes 90+ minutes per video due to lack of automated tools, leading to delayed publication and reduced accessibility. A successful solution would reduce captioning time to under 10 minutes whilst maintaining 95%+ accuracy."

Improvements:

- Clear persona and task
- Specific pain point with time metric
- Root cause and consequence stated
- Measurable success criteria

Problem Statement

Ask	End user
Who: <i>Who is your central customer/ audience?</i>	I am a...
What: <i>What is the outcome they're trying to achieve?</i>	who's trying to...
Barriers: <i>What are the barriers that stand in their way?</i>	but is hindered by...
Cause: <i>What is the root cause of the problem?</i>	because...
Impact: What are the negative side effects?	Which leads to...

End User: Laura Kimpton

From data collection into Problem Statement



Age: 34

Location: London

Profession: Senior
Communications Officer, GCS

Salary: £50k

Quote

"I wish I had a tool to help me quickly write and sign-off guideline-approved comms"

Pain Points

- **Fragmented sources:** guidance scattered across tools
- **Approval bottlenecks:** multiple reviewers; late policy changes invalidate drafts
- **Risk & trust:** fear of errors, out-of-date stats, or "hallucinated" content from AI tools
- **Time pressure:** Inefficient review processes.

Goals

- Faster, clearer citizen-facing comms
- Consistency with GCS style, ministerial lines.
- Reduce rework and approval timelines and evidence
- Improve accessibility

Motivations

- Improved public service
- Professional pride
- Career progression
- Reduction in inefficiency to make work less frustrating

Current solutions

- Manual checks of past guidance
- Drafts in Word, then circulates for edits by press office
- Uses checklists for tone, accessibility, and sign-off
- Tracks versions in long email chains
- Keeps a personal folder for future reuse

Once you have your problem statement...

You can start thinking about what a better outcome might look

But first we define our INNOVATION
GOAL

Framing your innovation goal

Persona - who we are designing for?

What do we know about this person's goals, behaviours, frustrations and constraints?

Problem Statement - What is getting in their way?

What specific problem are they experiencing, why does it happen, and what is its impact?

Innovation goal — What improvement should we aim for?

What outcome would make a meaningful difference to this person?

Explore solutions — What might help us achieve that?

What different approaches could deliver the improvement, and where might AI help?

The Innovation Goal Formula

Use this simple formula to anchor scope and outcomes. It connects purpose, persona, and benefit in one concise statement.

Keep the purpose a recognisable AI task, the persona someone you have evidence from, and the benefit observable and measurable.

Formula:

"Harness AI to [purpose] for [persona] so they can [benefit]."

In your projects, this formula becomes the North Star for design decisions and evaluation. It keeps teams aligned on who you're serving, what AI will do, and why it matters to users.

AI Innovation Goal

PURPOSE
Describe your AI
innovation: what
will it be/do?

PERSONA
Target audience:
whose goals are
you supporting?

Our project aims to harness AI to _____ for _____ so that

they can _____ .

BENEFIT
Ultimate impact:
what benefits will
your innovation
achieve for them?

Looking ahead to Consolidation Week:

Ideation!

Brainstorm potential solutions!

Mapping persona user needs to solutions

A simple structure to explore ideas

1

Map needs to AI tasks



Translate the user needs from your persona into relevant AI task types.

2

Identify feasible methods



Consider how each approach could be implemented.

3

Define success



Decide what improvement would demonstrate that the solution works.

Before you proceed, consider:



Priority

Which user needs are most urgent?



Risk

What are the risks of bias, hallucinations and privacy issues?



Accessibility

Will the solution meet users' accessibility requirements?

Key Takeaways



Personas Are Evidence, Not Fiction

Build from real data, triangulate sources, validate quickly, and record inclusivity needs explicitly.



Map User Needs to AI Tasks

Understand task types, assess data and constraints, and list risks alongside capabilities. Technology must serve the user's actual problem.



Governance and Ethics Are Core

Responsible AI demands transparency, bias audits, accessibility checks, and human oversight—especially in high-stakes domains.



Problem Statements Direct Action

Specificity, user-centricity, measurability, and actionability turn vague challenges into solvable problems.



Innovation Goals Anchor Teams

Use the formula to articulate purpose, persona, and benefit in one sentence. Pair with metrics and guardrails.



Define Success

Establish what a meaningful improvement looks like, then use clear outcomes to guide and evaluate potential solutions