

What is interaction design?

Naming the thing we have been doing all term: from good and poor design to a process you can run

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Where we are

We have completed the foundations and a project-driven detour. This chapter is the clean re-entry to the book.

COMPLETED

Foundations

User-centred design, usability engineering, Norman's principles, Nielsen's heuristics, heuristic evaluation, accessibility.

COMPLETED

Project detour

Personas, scenarios and measurable requirements, brought forward so teams could start Phase 1.

TODAY

This session

What is interaction design? The field, the process, and the difference between usability and experience.

The neat irony: you have practised interaction design before we have defined it. That hands-on grounding is exactly what this chapter rests on.

PART ONE

Good and poor design

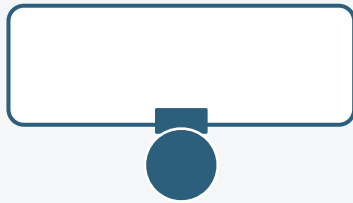
Why some products feel obvious and others feel like a fight

A design classic: the marble answering machine

Durrell Bishop, Royal College of Art, 1992

You walk in. Three marbles sit in the little tray. You know at once that you have three messages, and you have pressed nothing. How can a handful of objects tell you that, with no screen and no number?

1 A message arrives



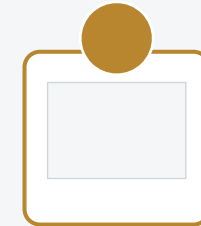
The machine rolls out one marble for every new message. The little pile is your inbox, sitting in the open.

2 Play it



Pick a marble and drop it in the dish. That message plays. No list to scroll, no number to remember.

3 Call them back



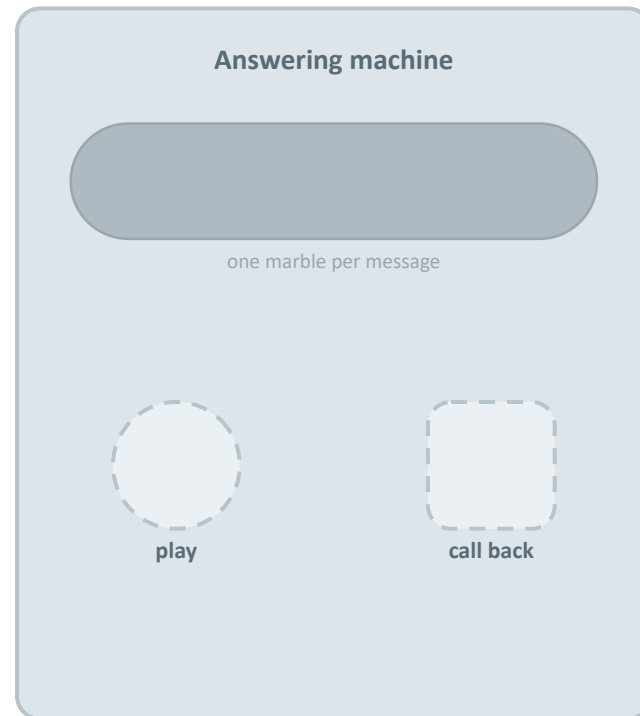
Place the marble on the phone and it dials that caller. The object itself carries the action.

Nothing here had to be learned. The design borrows what your hands have known since childhood: the state is simply visible, and the action matches the intention. This is Norman's visibility and mapping, years before Norman named them.

A machine made of marbles

3D physical: a tangible interface

advance to play - step 1 of 4



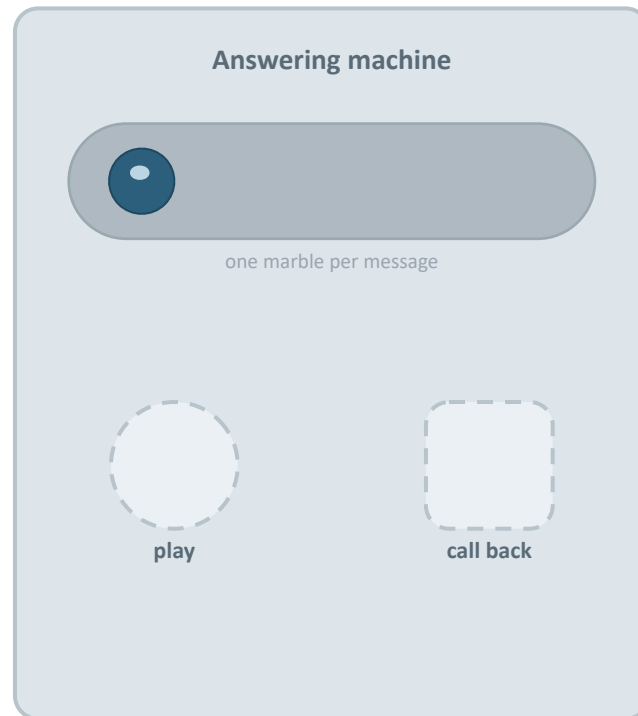
An empty machine

Nothing waiting, nothing to count. Watch what happens when a message comes in.

A machine made of marbles

3D physical: a tangible interface

advance to play - step 2 of 4



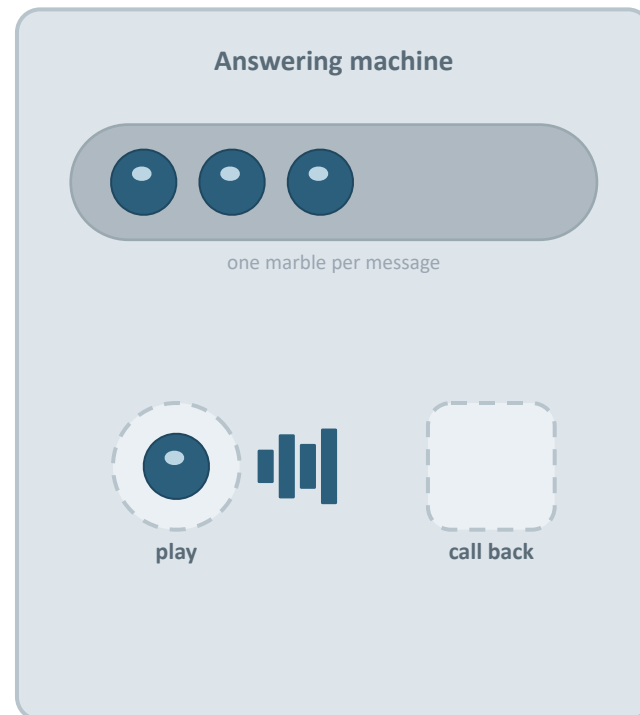
A message arrives

One marble rolls into the tray. One marble, one message. You can see you have a message from across the room, having pressed nothing.

A machine made of marbles

3D physical: a tangible interface

advance to play - step 3 of 4



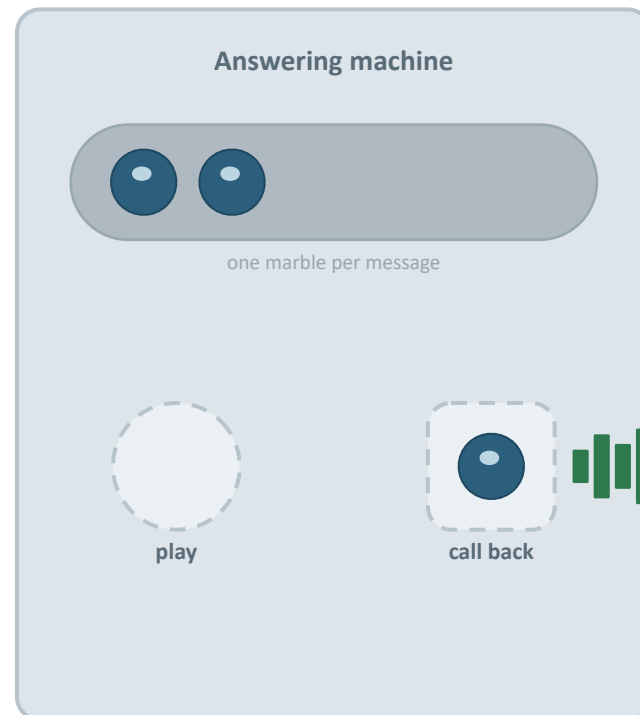
Three messages, and playing

More come in: three marbles, three messages, countable at a glance. Pick one up and drop it in the dish, and that message plays. No list, no scrolling.

A machine made of marbles

3D physical: a tangible interface

advance to play - step 4 of 4

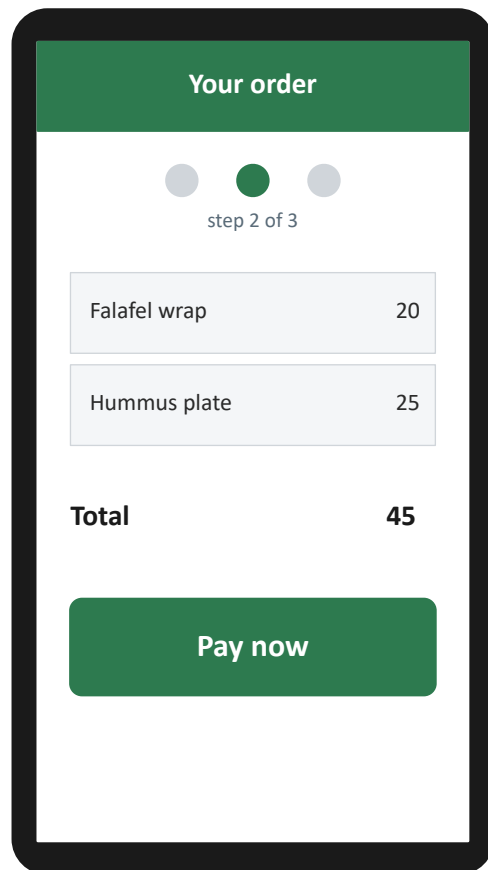


Calling them back

Place the same marble on the phone and it dials that caller. The marble is the message, and where you put it is the action.

The same gap, closer to home

Both screens let you finish the task. Which would you actually rather use? Notice your reason has almost nothing to do with how they look.



One clear next step, every time

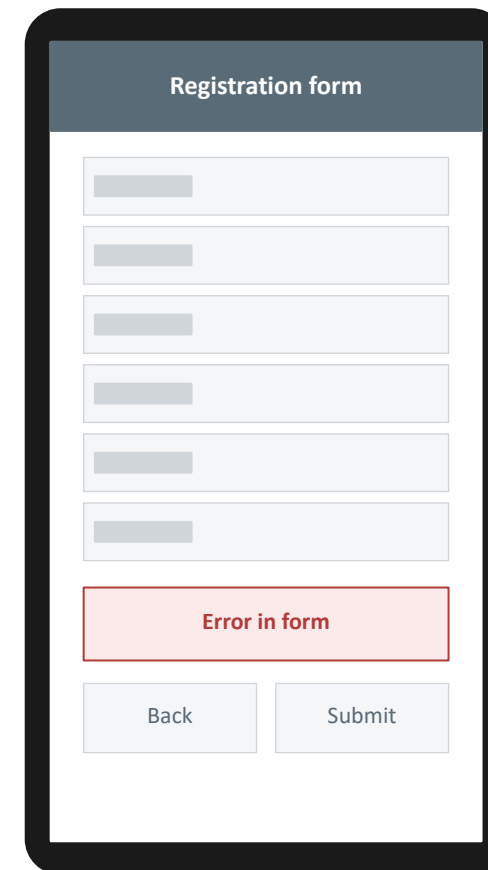
You can see where you are: step 2 of 3

Change the basket before you pay, so a mistake costs nothing

Which step is this? No idea, and no sign of the end

Fields cramped together, labels too small to scan

The error appears only after you submit, with no fix



Same task, both technically work. One respects your attention; the other spends it.

Where design starts: noticing

Before we put a definition on it, watch a designer describe where good design actually begins.



The first secret of design is ... noticing

Tony Fadell - TED 2015 - full talk about 16 minutes

ted.com/talks/tony_fadell_the_first_secret_of_design_is_noticing

The clip to play

Roughly 8:00 to 9:00: the “charge before use” story.

Watch for

How an everyday friction nobody else noticed, a device that arrived dead and said “charge before use”, became one design decision: ship it fully charged.

Discuss after

What invisible problem do you put up with every day, on a screen or off it, that you have simply stopped noticing?

Noticing the friction is the first half of design. Naming what the system should do about it is interaction design, which is exactly where we go next.

So, what is interaction design?

“Designing interactive products to support the way people communicate and interact in their everyday and working lives.”

Rogers, Sharp & Preece (2024), Chapter 1

In plain terms

Shaping how a person and a system meet, so the meeting helps the person do what they came to do. The focus word is interaction, the back-and-forth, not just the screen they look at.

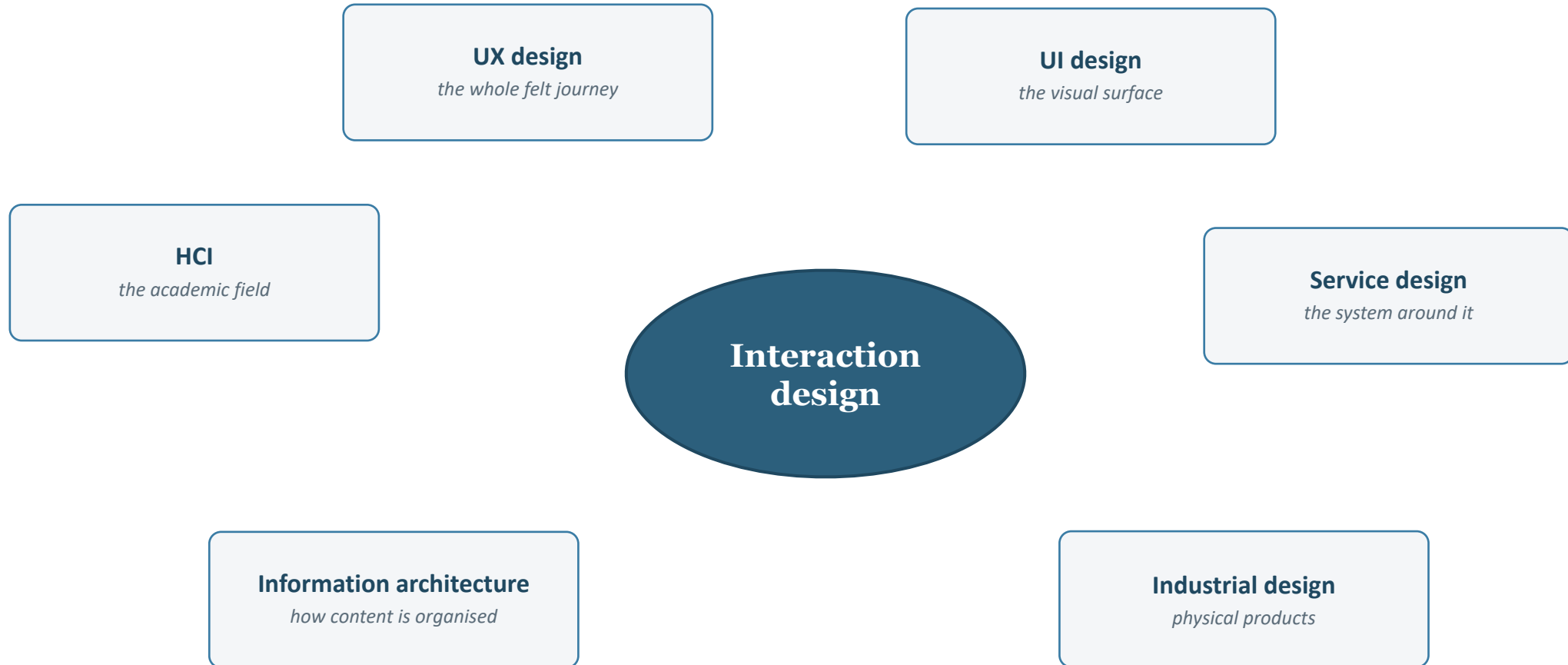
A second voice

“The design of spaces for human communication and interaction.”

Terry Winograd (1997). The word “spaces” is deliberate: we design the room people act inside, not only the buttons on the wall.

Interaction design and its neighbours

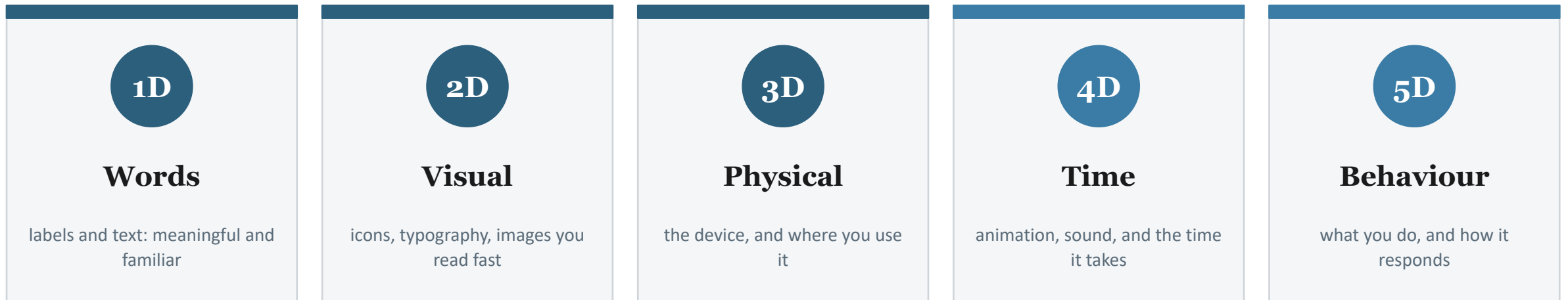
The job titles overlap and confuse everyone. Here is how the book untangles them.



Rule of thumb: interaction design is the core craft of the back-and-forth. UX wraps around it; UI sits inside it.

What interaction design is made of: five dimensions

One useful way to break the craft down. The first three let you act; the last two bring it to life.



Interaction design and UX, the difference: interaction design shapes the moment of interaction, these five dimensions. UX is the whole relationship around it, including service touchpoints and feelings that involve no interface at all.

We will make three of these concrete next, then meet the two dynamic ones, time and behaviour.

One camera control: words and visuals

The same control across three languages and two platforms. Watch which parts travel, and which must be redrawn.



1D Words the label is translated in every language

2D Visual the camera icon carries meaning across all of them

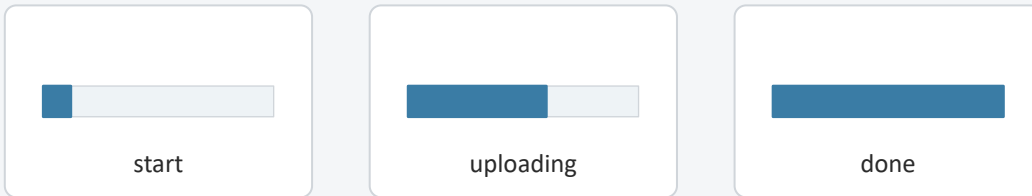
2D Style iOS rounds and outlines, Android fills and squares

The two that bring it to life: time and behaviour

The first three dimensions let you act. These two separate a living interface from a frozen screenshot.

4D Time

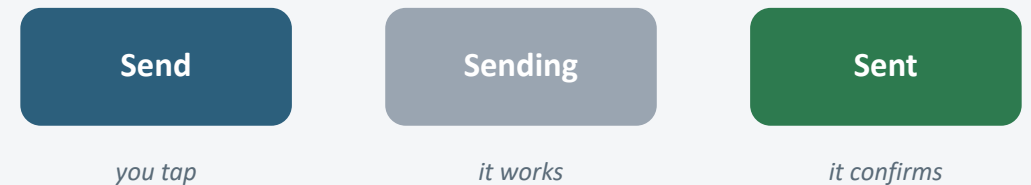
the same upload, watched as it happens



Media that change over time: animation, video, sound. Also the time it takes, the progress you can watch, and whether you can resume.

5D Behaviour

one button, answering back



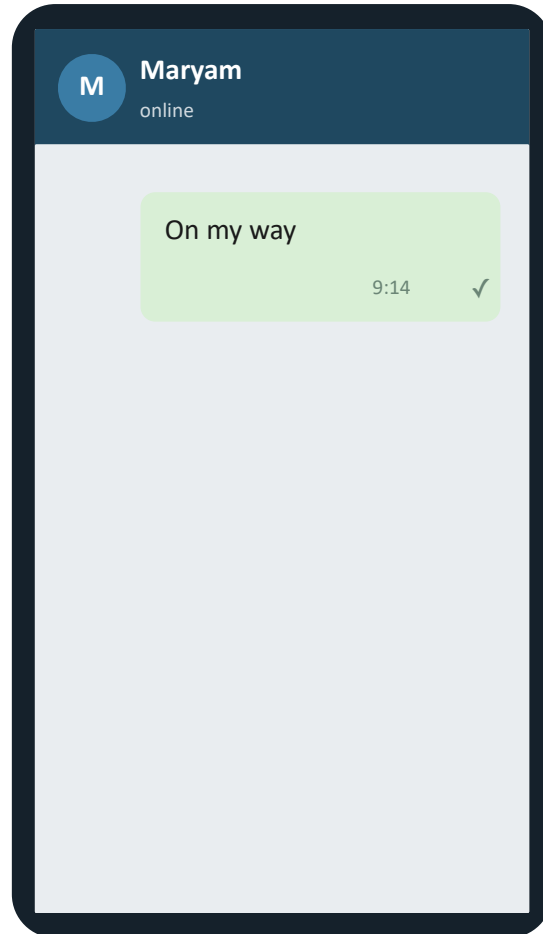
Behaviour is action and reaction: what the user does, and how the system answers. The button does not just sit there; it responds. This is where the other four come alive.

Words, visuals and objects are the nouns of an interface; time and behaviour are its verbs. To see these two move, open the companion demo, "Interaction design, alive".

A message, sent

4D time and 5D behaviour

advance to play - step 1 of 4



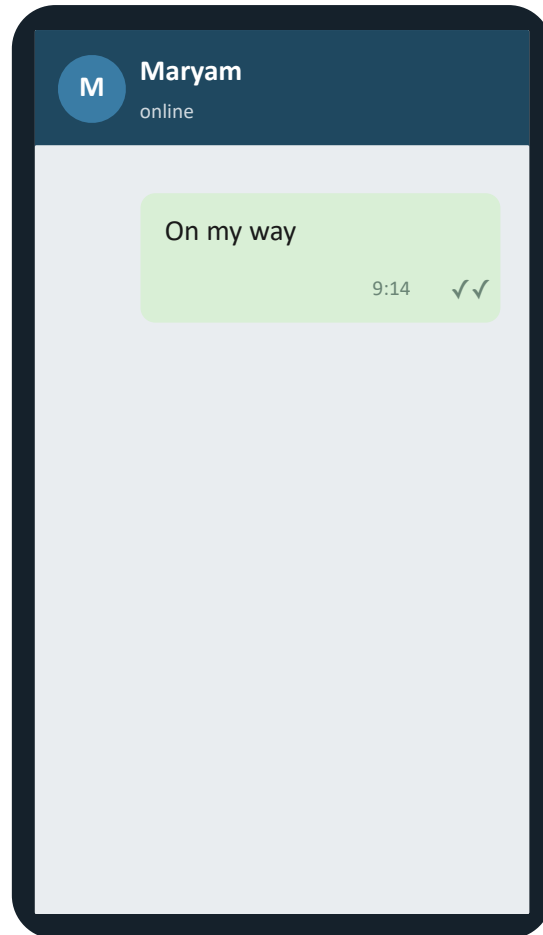
Sent

Your message has left your phone. One grey tick. Already the screen is telling you something has changed.

A message, sent

4D time and 5D behaviour

advance to play - step 2 of 4

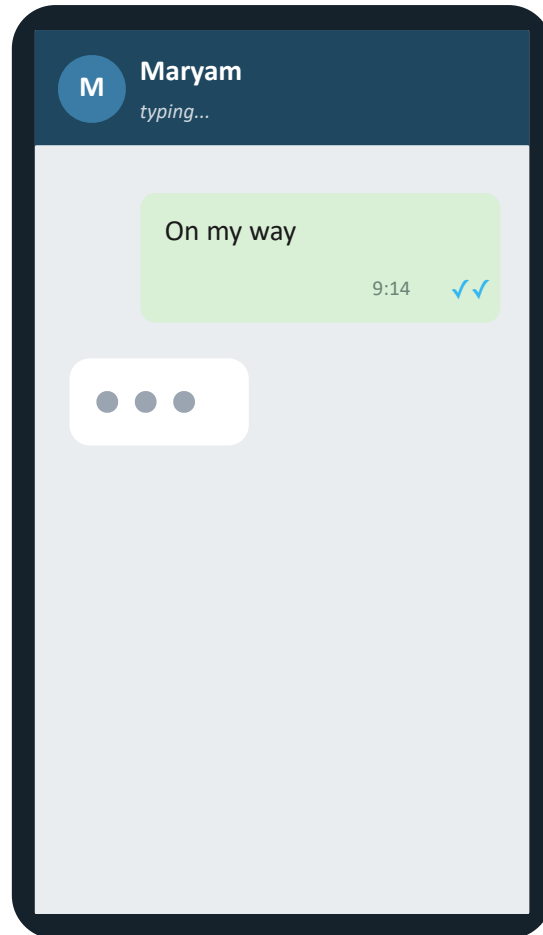


Delivered

Two grey ticks: it reached her phone. Notice this is not a still picture. The status changes as the message travels. That is the time dimension at work.

A message, sent

4D time and 5D behaviour



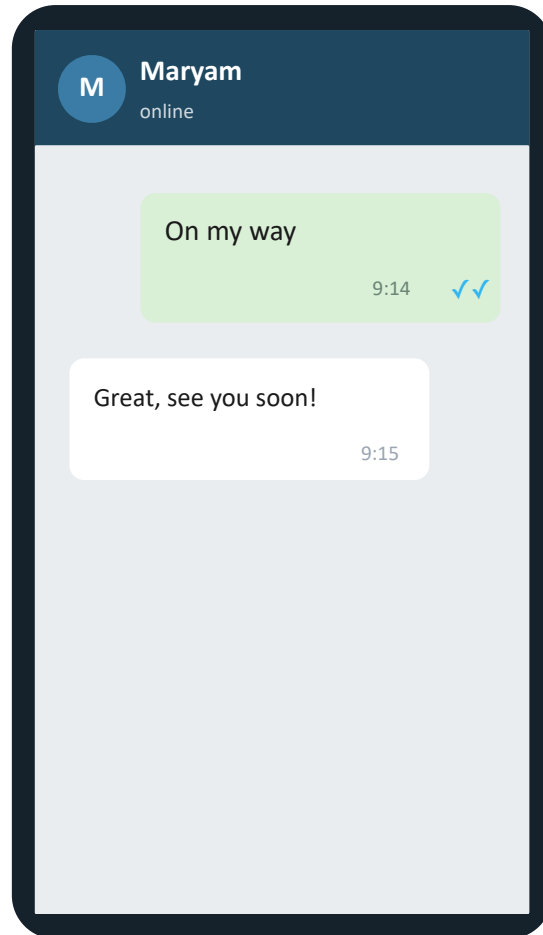
advance to play - step 3 of 4

Read, and replying

Two blue ticks: she has opened it. And the header now reads typing. The interface is narrating what is happening, moment by moment.

A message, sent

4D time and 5D behaviour



advance to play - step 4 of 4

She answers back

Her reply lands. This is behaviour: your action, and the system answering. The other four dimensions only come alive once time and behaviour join them.

Watch: the five dimensions, and where UX fits

A short, example-rich primer that ties the five dimensions together and places interaction design inside UX.



What is Interaction Design?

Interaction Design Foundation - a short explainer

[youtube.com/watch?v=U7rS_2ch_Ps](https://www.youtube.com/watch?v=U7rS_2ch_Ps)

What to watch for

The five dimensions in real apps, with everyday examples of words and icons, the ones we just drew by hand.

And the scope line

Interaction design is one part of the wider UX: it shapes the interaction, while UX covers the whole relationship.

Discuss after

Pick one app on your phone. Name one concrete example of each of the five dimensions in it.

Interaction design shapes the moment of interaction. UX is the whole relationship around it, which is why the two are related but not the same.

What counts as “an interactive product” now

When a smart speaker has no screen at all, where does the “interface” actually live?



Phones and tablets

touch, gestures, one hand on a moving bus



Voice assistants

no screen at all, you speak and listen



Cars and dashboards

glance-and-go, where a confusing menu is dangerous



Wearables

a watch face the size of a stamp



Smart home and sensors

things that act without being touched



AI assistants and chat

you converse, and the system replies in language

Each new form breaks an assumption the last one relied on. That is why the process matters more than any single rulebook.

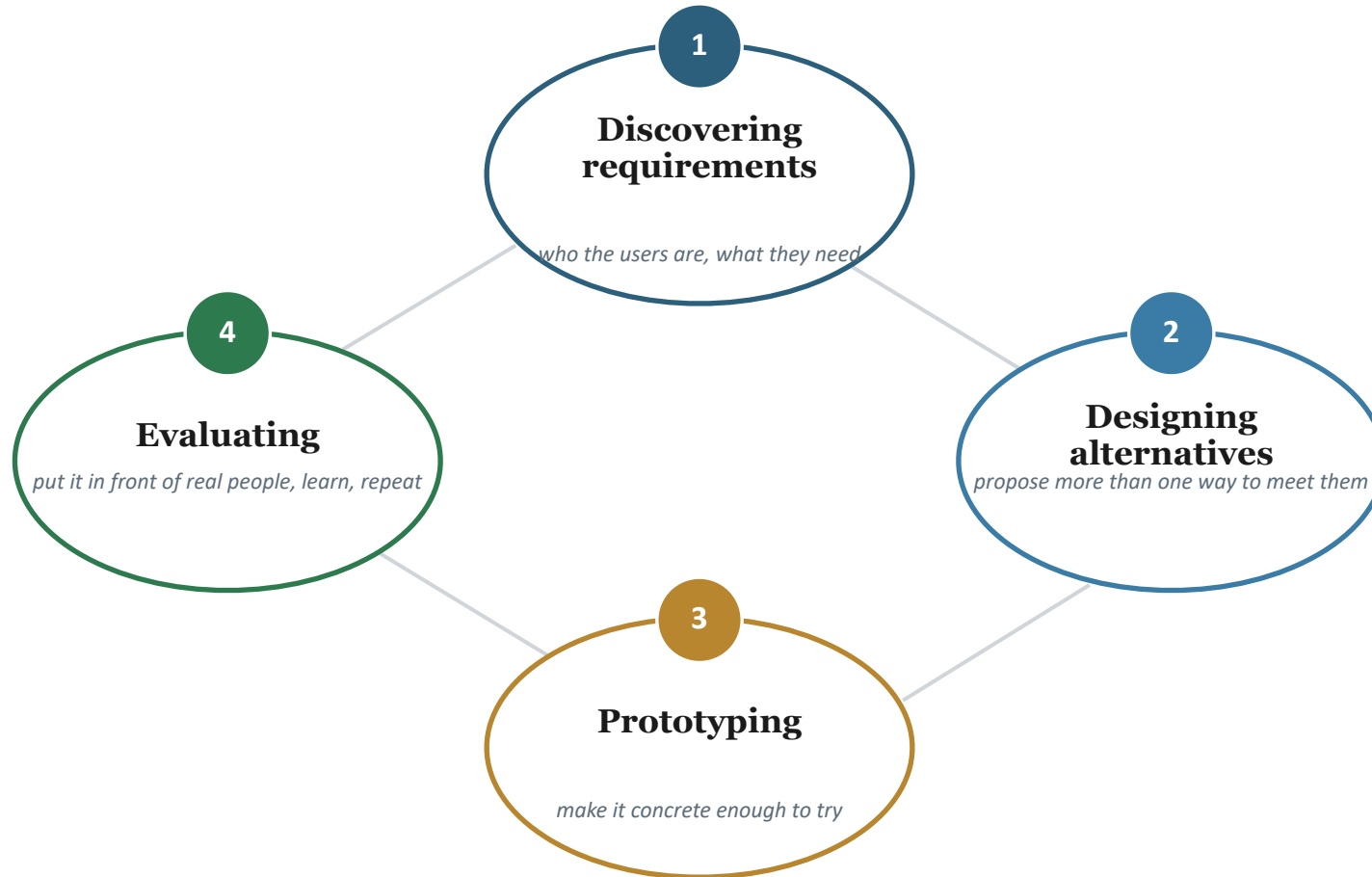
PART TWO

The process

How interaction designers work, no matter what they are designing

The four activities of interaction design

Rogers, Sharp & Preece (2024). Not a strict line: the activities feed back into one another, again and again.



Read it as a loop

You discover what is needed, sketch a few ways to meet it, build a rough version, then test it.

What you learn from testing sends you back: to redesign, or even to rethink the requirement itself.

Good design rarely runs once. It circles, getting closer each pass.

This is your project, in disguise

The four activities are not abstract. Your three phases run them, almost one to one.

Activity (the book)	Your project	What you actually did or will do
Discovering requirements	Phase 1	Heuristic evaluation, interviews, personas, scenarios, measurable usability requirements.
Designing alternatives	Phase 2	Design rationale and low-fidelity wireframes: more than one way to solve the problem.
Prototyping	Phase 2	The interactive prototype a user can actually move through.
Evaluating	Phase 3	Usability test, SUS, heuristic re-evaluation, then a revision plan: the loop closing.

The revision plan in Phase 3 is the loop turning back to the start. That is the cycle made visible, and the marks reward it.

From a scenario to an interaction

A requirement says what must be true. Interaction design decides what the system does so it comes true. Which parts of the brief lead the way?

Scenario (from Phase 1)

Layla is on the bus, one hand on her phone, weak signal. She wants to register for COMP322. Section 1 is full; she wants the next open section without losing her place.

Requirement (measurable)

A student can find and register for an open section in under 60 seconds, with at most one error, on a phone.

The goal

Make “register for an open section” the one obvious primary action, not an item buried in a menu.

The context

On a bus, one hand, weak signal: big touch targets, almost no typing, fast load, survives a poor connection.

The friction point

Section full? Show live seat counts before she commits (visibility), and offer the next open section in one tap (recovery). This is the interaction the scenario demands.

The measured target

Under 60 seconds and one error caps how many steps and screens the design is allowed to spend.

Read it the other way: the verbs and the friction moments in a scenario are your design to-do list, and each one maps onto a Norman principle.

Three principles that run through all of it

First set out by Gould and Lewis in 1985, and still the backbone of user-centred design.

1

Early focus on users

Talk to real users from the very start, not after the thing is built. The first activity, discovering requirements, is this principle in action.

2

Empirical measurement

Watch real people use it and measure what happens. Opinions in the room lose to evidence from a user. Your SUS score is empirical measurement.

3

Iterative design

Expect to go round more than once. Each pass is cheaper to fix than the last. Your revision plan is a promise to iterate.

Each principle has a direct echo in your project. That is not a coincidence; the project was built on them.

PART THREE

Usability and experience

Two different questions: can people use it, and how does it feel to use

Usability goals: can people use it?

Picture the last cash machine you used. Run it through these six. Where did it pass, and where did it quietly fail?



cash machine

Effective to use

You walk away with your cash. The core job succeeds.

passes

Efficient to use

A regular user is in and out in under a minute.

passes

Safe to use

Card back before the cash, or after? Get this wrong and people forget their card.

watch this

Good utility

Withdraw, balance, mini-statement: the right functions are there.

passes

Easy to learn

A first-timer manages with no help and no manual.

passes

Easy to remember

Months later, you still know exactly what to do.

passes

Experience goals: how does it feel?

Two apps both work perfectly. One you open with a small smile, one with a small sigh. What is that difference actually made of?

Qualities we design toward

Satisfying Enjoyable Engaging Pleasurable

Helpful Motivating Rewarding Aesthetically pleasing

Supportive of creativity Emotionally fulfilling

Qualities we design away from

Boring Frustrating Annoying Cutesy

Condescending Making you feel guilty

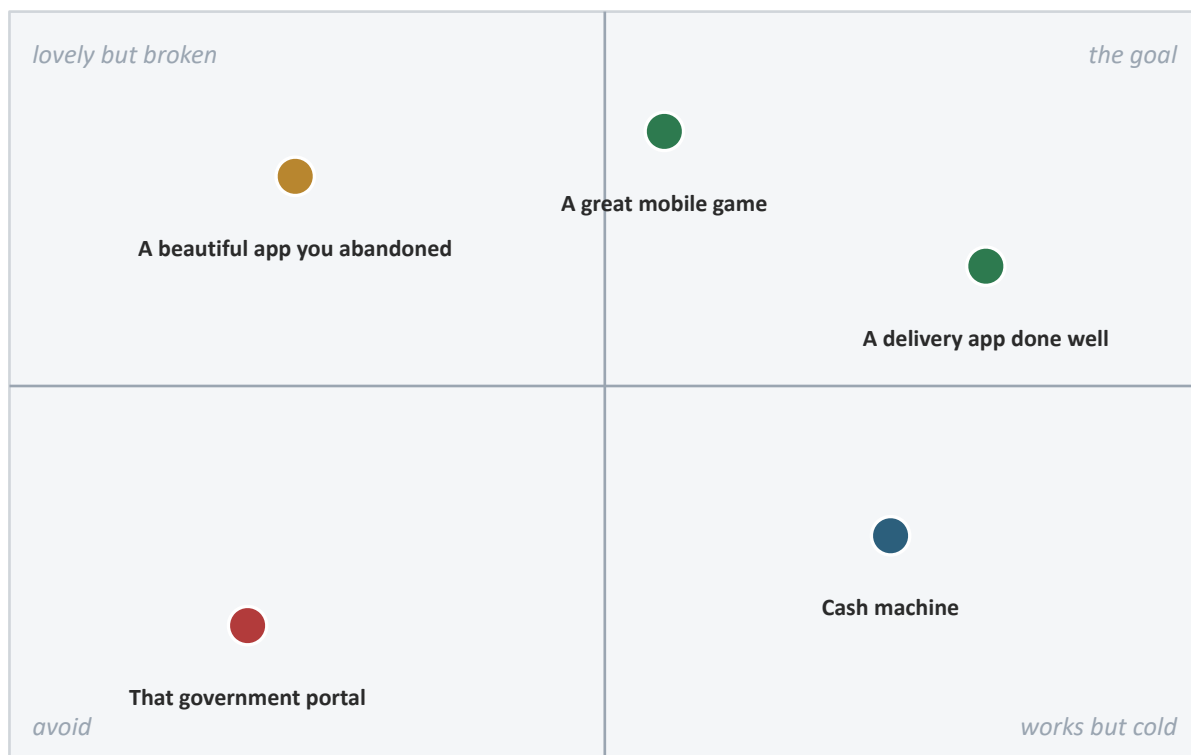
Making you feel stupid

Same emotional toolkit, opposite dials: a meditation app aims for calm and unhurried; a fraud alert aims for urgent and serious. You choose the feeling on purpose.

The same product can pass one and fail the other

Two questions, two axes. The job is to land in the top-right and stay there.

how it feels - higher is better



can they use it - further right is easier

Plot it yourself

Where does your banking app sit? Your university portal? The app you open first thing every morning?

Be honest, and notice you are judging two things at once: whether it works, and how it feels.

Right means easier to use. Up means better to feel. The corner you want is top-right.

And it must work for everyone

The 2024 edition treats accessibility and inclusiveness as part of the definition of good design, not an add-on.

Accessibility

Can people with disabilities reach and use it? Screen reader users, low vision, limited dexterity, deaf or hard of hearing.

Inclusiveness

Does it leave anyone out by accident? Language, literacy, older or younger users, cheap devices, weak connections.

For us, specifically

Right-to-left layout for Arabic, readable contrast in bright sun, and designs that survive a slow or intermittent connection.

This is not charity. The curb-cut effect is real: design for the edge and the whole crowd benefits.

Your turn: critique something you use every week

In pairs, six minutes. Pick one service you genuinely use, then run today's lens over it.

1

Name it and its main job

One service: Ritaj, a bank app, Talabat, a bus or parking app. What is the one thing people come to it for?

2

Score it on two questions

Usability: can people do that job? Experience: how does it feel while they do? Place it in one of the four corners.

3

Find one concrete fix

Name a single change that would move it up or to the right. Be specific: which screen, which moment.

Then a few pairs report back: name, corner, one fix. Whoever names the most precise fix wins the round.

Where this leaves us

Three things to carry out of here

- Interaction design shapes the back-and-forth between people and systems, not just the screen.
- Every designer runs four activities in a loop, and your three project phases are exactly that loop.
- Usability and experience are two questions, can they, and how does it feel. Aim for both, on purpose.

Next session

Understanding and conceptualising interaction

Chapter 2. Conceptual models and interface metaphors: the mental picture a design gives users, and why a wrong picture is so hard to shake.

On your project right now

You are in 'designing alternatives' and 'prototyping', the middle of the loop. As you build Phase 2, name an experience goal for your prototype, not only a usability one. Decide how you want it to feel.

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