From Definition to Practice

Written by [Febogamedev]

So far, we have answered only one question: what design is.
The answer was a definition that describes without judging, even allowing us to recognise projects with questionable purposes as design.

Now we change the question.
No longer what it is, but how to work: how to move from an abstract criterion to concrete decisions about a project.

Pay attention to this transition, because it is a change of level: from here onwards, we enter the realm of judgement, which the definition deliberately excluded.
The two do not contradict each other: first we defined the field, now we move within it.
This chapter follows three steps:

- **Experience**, and the ways it can have value for someone.
- **The problem**: the tool for understanding which experience is needed.
- **The idea**: the leap from problem to solution.

Note:
For simplicity, we continue to use an anthropocentric version of design. Let me remind you of its definition: Anthropocentric design is the intentional planning and shaping of artefacts oriented towards people, taking what happens in their experience in the aspects relevant to the purposes pursued as the criterion of success.

Experience

The definition of experience underpins everything, and so far we have used it as though it were clear.
It is not, and as a result a decisive question has remained unanswered:

Which experience, exactly?

- The one a person lives through while using something?
- The one they remember the next day?
- The one they recount to someone else the following week?

They seem to be the same thing. They are not at all, and the difference changes how we design.

Let us begin with the phenomenon.
You take a three-hour car journey.
What did you experience?
A continuous flow: the road, noise, your body's position, changing light, a hundred micro-decisions, temperature, music, thoughts passing through your mind. Thousands of moments, one after another, most leaving no trace.

Now tell someone about it. What do you say?
"A quiet journey, then a terrible traffic jam at the exit, and finally I found a parking space straight away."
Three elements, perhaps four. From three hours of life.

Notice what happened in the transition: the account selected very little, arranged what remained into a sequence with a beginning and an end, and gave those few elements a form, a progression, almost a little plot.

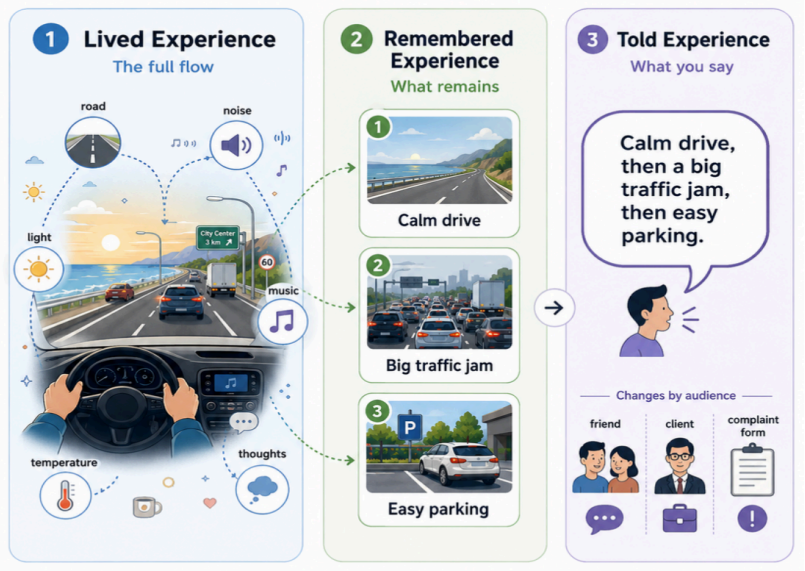
Lived experience and recounted experience are not the same thing in two different formats. They are two different things, and the second is not a faithful summary of the first. Moreover, recounted experience does not derive directly from lived experience, but from memories, which themselves act as a filter: they erase some parts of the experience and may change others.

Three levels through which experience is lived, reconstructed and communicated.

- Lived experience: the flow as it happens. Continuous, embodied, multisensory and largely non-conscious: most of what happens to you never reaches your attention.
- Remembered experience: what remains afterwards. Not a recording but a reconstruction: a few elements, reorganised, with the addition of what you have understood in the meantime.
- Recounted experience: what you tell others. Further selected and shaped by the listener: you recount it differently to a friend, to a client or on a complaint form (Tversky & Marsh, 2000).

And this is the point: the three diverge, and each influences the others.

- Memory changes how we interpret past experience.
- Recounting changes memory (Tversky & Marsh, 2000).
- Memory changes what you will notice in subsequent experiences.



Further exploration
Some definitions of "experience" describe it as a conscious representation of a lived event.
That works for remembered experience, which is conscious by definition, but not for lived experience.

If experience were only what we are conscious of, invisible design would not exist: a well-designed handle can be used without requiring conscious attention to how it works.

With this clarified, we can say what an experience is in the sense we need.

An experience is an episode in a subject's life that unfolds over time as a flow of perceptions, actions, interpretations and states, and that can subsequently be delimited, remembered and evaluated as a whole.

It has a series of properties worth listing, because each is a lever a designer can use.

Property	What it means	Why it concerns you
It is a flow	It unfolds over time, with a before, during and after	You are designing an arc, not a moment
It has a trigger	It begins for a reason, not by chance	The "before" is part of the experience
It can be anticipated	It is imagined before being lived	Anticipation is already experience, and changes it
It can be chosen	It is often the result of a decision	It is reached by comparison with alternatives
It can be planned	In greater or lesser detail	An unfulfilled plan can produce frustration because it creates a gap between expectation and experience
It is remembered	And memory is a reconstruction	What remains is not what happened
It is evaluated	Before, during and after — and the three judgements differ	The verdict changes over time
It teaches something	It can trigger learning	The second time is not the first
It can become a habit	And then it stops being noticed	Habit can progressively reduce awareness of aspects of interaction that initially required attention (such as using a door

		handle).

The last two deserve a note, because they describe the fate of almost every experience you will design: people learn to do it, then stop noticing it.
This is why the first encounter and the hundredth are different experiences with the same artefact.

And here is the most useful — and most counterintuitive — thing to know about remembered experience.
You might think the memory of an experience is a kind of average of how it went: if it was mostly good with one bad moment, it will remain good on average.
It does not work that way.

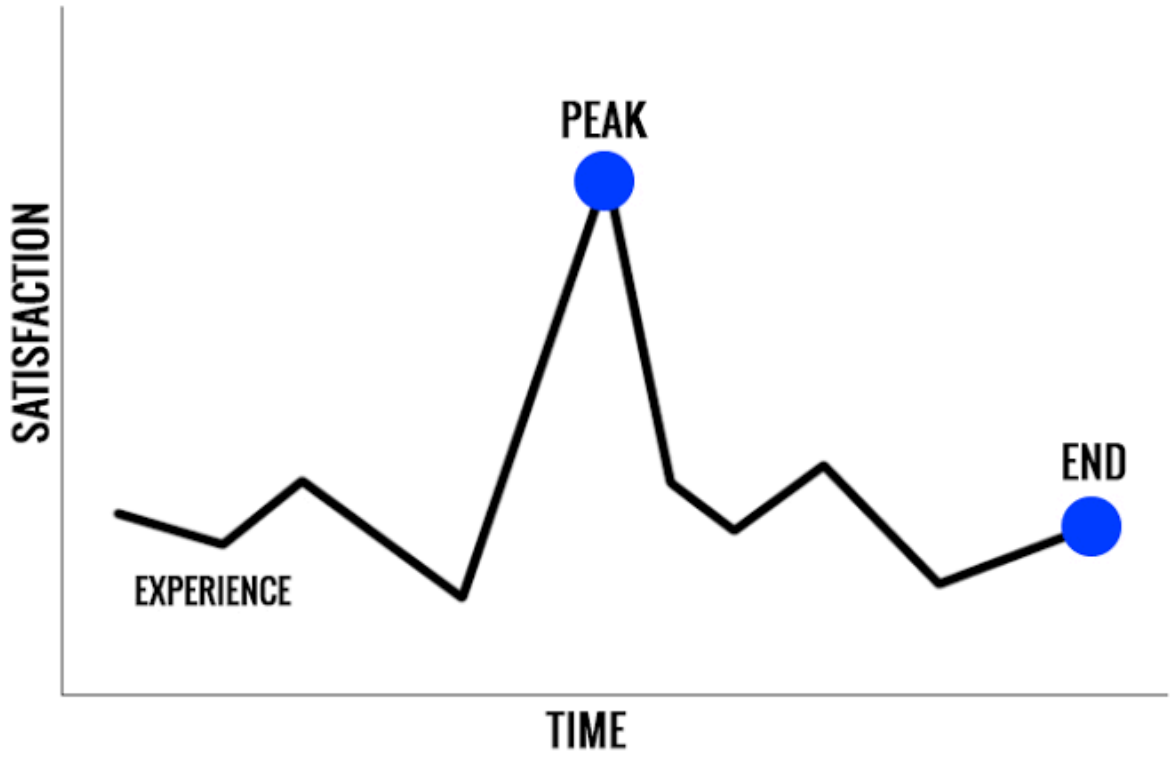
Under some conditions, retrospective judgement of an experience can be disproportionately influenced by its most intense moments and by how it ends.
This phenomenon has been described through the so-called **peak-end rule** (Fredrickson & Kahneman, 1993; Kahneman et al., 1993).

In some of the same contexts, relative **duration neglect** has also been observed: overall duration may affect memory less than we would intuitively expect (Fredrickson & Kahneman, 1993).

A longer, worse experience overall can be remembered more favourably than a shorter one if it ends well (Kahneman et al., 1993).
This is the most surprising finding, and it has an everyday version you will recognise: a wonderful evening spoiled by an argument in the last ten minutes is remembered as a bad evening.

The ending and particularly intense moments can carry disproportionate weight in retrospective evaluation.

- Not because the ending is more important while you live through it — its moments last just as long as the others — but because it is what memory retains.
- A single intense moment, positive or negative, can dominate the memory of hours.



For a designer, this distinction matters because once an experience has ended, it is no longer directly available.
Subsequent decisions can rely only on the traces it left: memories, evaluations, learning and dispositions that do not necessarily coincide with what was lived moment by moment. Whether people return, recommend it or buy it again: these decisions are made from memory. And memory is strongly influenced by the peak and the ending.

A clarification on the findings: the peak-end rule and duration neglect have been observed under specific conditions and are not universal laws of memory. For experiences consisting of many episodes, overall progression and duration may also matter. The design guidance that follows should therefore be treated as hypotheses to test in context, not guarantees about people's memories or future decisions (Miron-Shatz, 2009).

This has some direct practical implications:

- Design the ending: it is the part almost everyone neglects because it arrives when the work seems finished: the confirmation screen, the moment of delivery, leaving the shop, closing a case. It can carry disproportionate weight in retrospective evaluation.
- Know where the peak is: identify any particularly intense moments.
- Watch out for negative peaks: one truly bad moment can overshadow everything else, however good the rest was. Eliminating the worst point is often worth more than improving the average.
- And duration may matter less than you think: not that you can make people wait forever — but between a short, unpleasant wait and a longer, calm one, the latter is remembered more favourably.

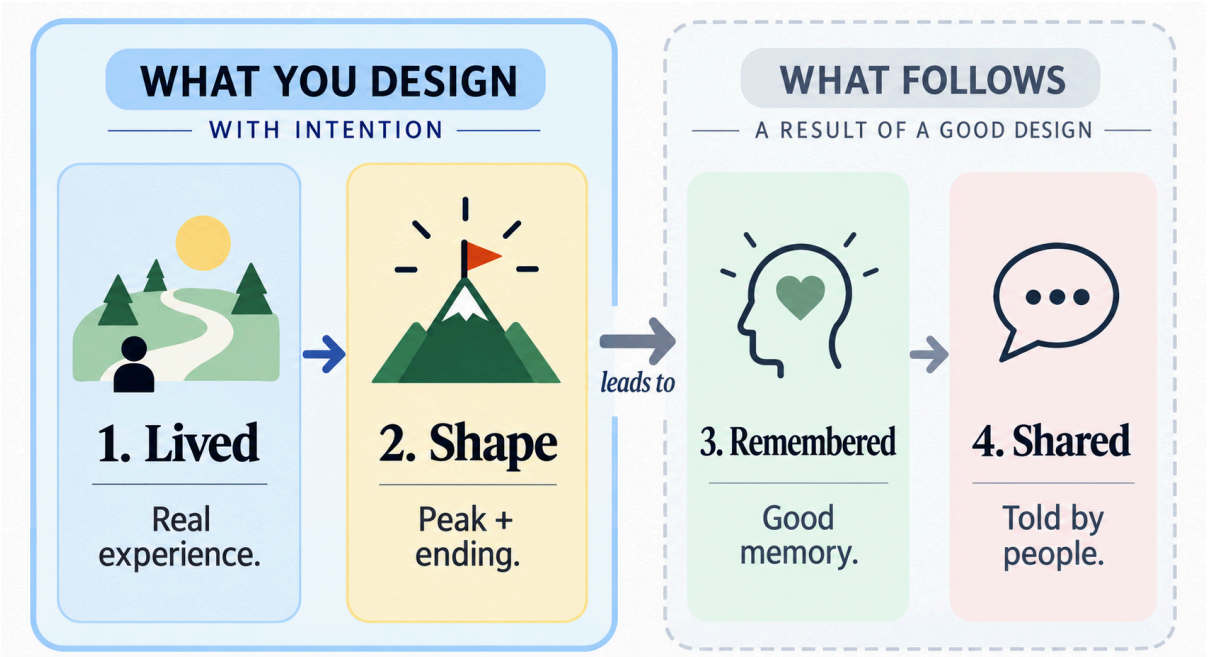
Which experience is the criterion?
Let us return to our opening question, because we can now answer it — and the answer is not simple.

We cannot consider only lived experience.
It would be the most honest choice — it is what actually happens to a person — but if an excellent experience is remembered badly, that person will not return or tell anyone about it. You will have designed something well that produces no effect.

We cannot consider only remembered experience.
That would be cynical and lead straight to manipulation: simply take care of the peak and the ending, and let the rest be a disaster.
That is exactly what some commercial experiences do: they are built to be recounted well and lived badly.

And recounted experience cannot be controlled at all, because it belongs to whoever recounts it.
The workable answer is that lived experience is the criterion, and the other two are how its effects are realised.
More precisely, lived experience remains the primary criterion of the project; remembered and recounted experience are subsequent transformations through which what was lived continues to produce effects over time.

Design it to be truly good — then attend to the peak and the ending, because without them even a good experience leaves no trace.
If the two diverge — if making something memorable requires making it worse to live through — you know you are moving away from the criterion and beginning to design the impression rather than the thing itself.



One final clarification, returning to an important principle: experience cannot be designed.

An experience happens within a person, with their history, mood and skills, and in a context you do not control. You cannot put it there.
What you can do is design the conditions that make it likely: the artefact, rhythm, sequence, what is and is not visible, when something happens and when it ends (Hassenzahl & Tractinsky, 2006; Desmet & Hekkert, 2007).

This is why the expression "designing experience" should be used in the knowledge that it is shorthand.
You design what the experience will encounter.
This is why, in the model adopted in this text, design builds a synthetic experience: a model of what could happen to the recipient, used as a basis for formulating and evaluating design decisions.

And you accept that there will always be a gap between what you have arranged and what will actually happen to someone.

The quality of an experience

If experience is a complex flow that the designer cannot design directly, how can the artefact's characteristics contribute to its quality?

We have seen that experience is not something a designer can put directly into an artefact. The designer can configure forms, behaviours, conditions and meanings that will enter into a relationship with a subject, but what is actually experienced will also depend on the person, their history, expectations and context (Hassenzahl & Tractinsky, 2006).

Moreover, this relationship does not all happen in the same way.

- Some characteristics are perceived immediately, through shapes, colours, sounds, movements, textures and other sensory properties.
- Others become relevant during action, through what the artefact allows us to do and how it acts and responds.
- Still others are interpreted through meanings, values, memories and judgements that may develop over time.

An experience is not made up only of successive events.
Those events take on a particular qualitative character for the subject.

Using an artefact can feel easy or difficult, controllable or unpredictable, pleasant or unpleasant, reassuring or frustrating.
We can therefore speak of the **quality of experience** to indicate the overall character the experience takes on for the subject as it is lived and subsequently interpreted.

It is important to clarify that speaking of the quality of experience does not necessarily mean establishing how good an experience is.

Here, quality indicates how that experience is lived.
An experience can therefore be:

- Easy or difficult.
- Demanding or effortless.
- Controllable or unpredictable.
- Pleasant or unpleasant.
- Reassuring or frustrating.
- Engaging or boring.

These characteristics can depend on different aspects of the relationship between subject, artefact, activity and context.
One of the most evident manifestations of the quality of experience consists of affective and emotional responses.
Pleasure, frustration, surprise, tension, relief or fear are not necessarily separate from experience, but can emerge from the relationship between the subject, what they are trying to do, what they encounter and the context in which the experience takes place (Desmet & Hekkert, 2007).

A person may, for example, feel frustrated because an action does not produce the expected result, relieved when they finally complete it, or reassured when the artefact's behaviour is predictable and controllable.
Affective and emotional responses can therefore provide important information about how an experience is lived, without exhausting its entire quality.

When we design a synthetic experience, we are precisely formulating a hypothesis about what could happen to a subject in the situation considered.
We can represent:

- What they will perceive.
- What they will try to do.
- The actions they might perform.
- The artefact's responses.
- The obstacles they might encounter.
- The consequences of different actions.
- Possible interpretations and reactions.

Synthetic experience does not, however, establish what will actually happen.
To test our hypotheses, we must compare them with actual experience.
We can therefore observe what a person does, but also gather their evaluations: whether the experience was easy or difficult, pleasant or frustrating, reassuring or stressful, controllable or unpredictable.

These evaluations depend on what happened, the person's objectives, expectations and interpretations, and the affective and emotional responses that emerged during the experience.
Moreover, once over, the experience does not necessarily remain in memory exactly as it was lived.
As we have seen, we can distinguish lived, remembered and recounted experience.

What happens during an experience can subsequently be selected, reinterpreted and reconstructed in memory. What a person remembers or recounts may therefore not perfectly coincide with the sequence of events they lived through.
For the designer, it therefore becomes important to observe not only what happens, but also how what happens is experienced.

Think of a simple handle.
A person can approach, immediately understand how it works, grasp it, make the necessary movement and open the door without hesitation.
The experience can be so simple and smooth that it requires almost no conscious attention.
The person might therefore use the handle perfectly without remembering it afterwards.
This helps explain why so-called invisible design is not necessarily a limitation.

In some projects, success may consist precisely in allowing a person to perform an activity without the artefact constantly demanding attention.
An effective interaction need not be memorable.

At the same time, however, an artefact's ability to achieve an objective correctly does not fully describe the experience.
Two artefacts may allow the same activity to be performed and yet be experienced very differently.
Think of two automatic doors.
Both allow entry into a building.

- The first detects the person late, opens suddenly and closes quickly.
- The second detects the approach early, opens progressively and remains open for an appropriate time.

From a strictly functional perspective, both allow passage.
Yet the experience may take on a very different character.

- The first may be experienced as abrupt, jittery or unpredictable.
- The second as smooth, calm or reassuring.

This example reveals an important distinction.
The quality of experience concerns the overall way a subject experiences a situation.
Simply put: quality of experience → how I am experiencing something.

But within experience, we can also observe a more specific aspect: how what we encounter presents itself to us.

- The door may look light or massive.
- Its movement may feel smooth or abrupt.
- Its appearance may seem restrained or showy.
- It may communicate modernity, prestige, safety or instability.

We are no longer describing only how we experience the situation overall.
We are describing how something appears, behaves and takes on meaning in our experience.

We thus enter the dimension of aesthetics.

Simply put:

- Quality of experience → how I am experiencing something.
- Aesthetics → how that something appears to me.

We can therefore ask more precisely which part of the quality of experience belongs to the aesthetic dimension.

Aesthetics

When we speak of aesthetics, we often think of beauty or visual appearance. Aesthetics, however, concerns a broader field.
We have seen that we can speak of the quality of experience to describe the overall character a situation takes on for the subject.
An experience can feel easy or difficult, pleasant or frustrating, controllable or unpredictable, demanding or relaxing.

Aesthetics, instead, concerns a more specific aspect of this experience: the qualitative way in which what we encounter presents itself to us.

In the model adopted in this text, we can therefore say:
Aesthetics concerns the qualitative way in which an entity appears, behaves and takes on meaning in a subject's experience.

More simply:

- Quality of experience → how I am experiencing something.
- Aesthetics → how that something appears to me.

The distinction may seem subtle, but an example makes it clearer.
Imagine using software.
Saying “It is difficult to use” describes a quality of the person's experience.
Saying, instead:

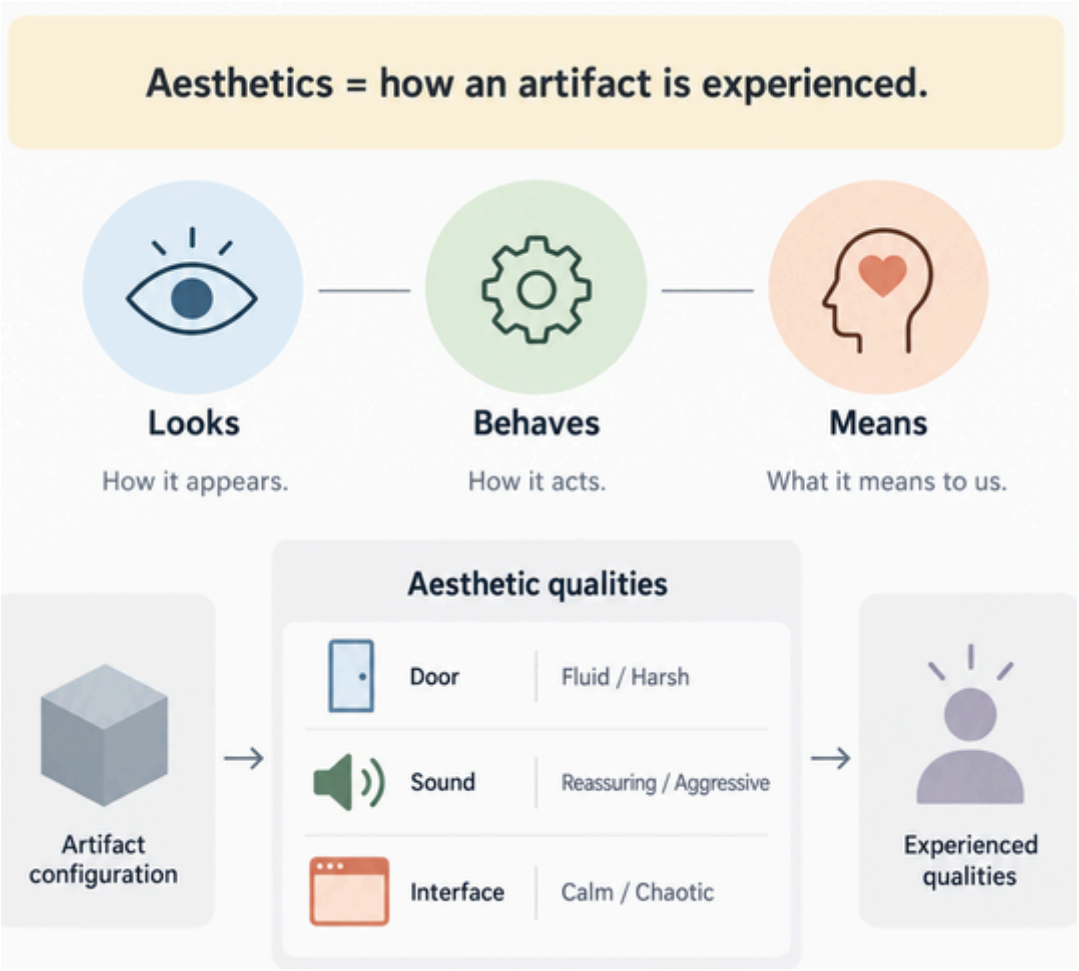
- “The interface looks chaotic.”
- “The transitions feel abrupt.”
- “The software seems professional.”

Describes how the software presents itself in experience.
We thus enter its aesthetic dimension.
In design, we can therefore be more specific:
Aesthetics concerns the qualitative way in which an artefact's configuration appears, behaves and takes on meaning in a subject's experience.

- A door may look massive or light
- A door may open smoothly or abruptly.
- A door may be interpreted as elegant, technological or inexpensive.
- An interface may look restrained or chaotic.
- A sound may feel soft or aggressive.
- A car may communicate sportiness, solidity or prestige.

We call **aesthetic qualities** the characteristics attributed to how something presents itself in experience.
We can therefore have qualities such as:

- Smooth.
- Abrupt.
- Restrained.
- Chaotic.
- Light.
- Massive.
- Delicate.
- Aggressive.
- Professional.
- Playful.
- Elegant.
- Unsettling.



The set of aesthetic qualities we attribute to something constitutes its **aesthetic character in experience**.
This definition also explains why aesthetics does not concern only artefacts.

- A tree can look imposing.
- A landscape can feel melancholy.

- A thunderstorm can seem threatening.
- A rock formation can look harmonious or rugged.

In design, however, we are particularly interested in the relationship between the artefact's configuration and aesthetic experience.

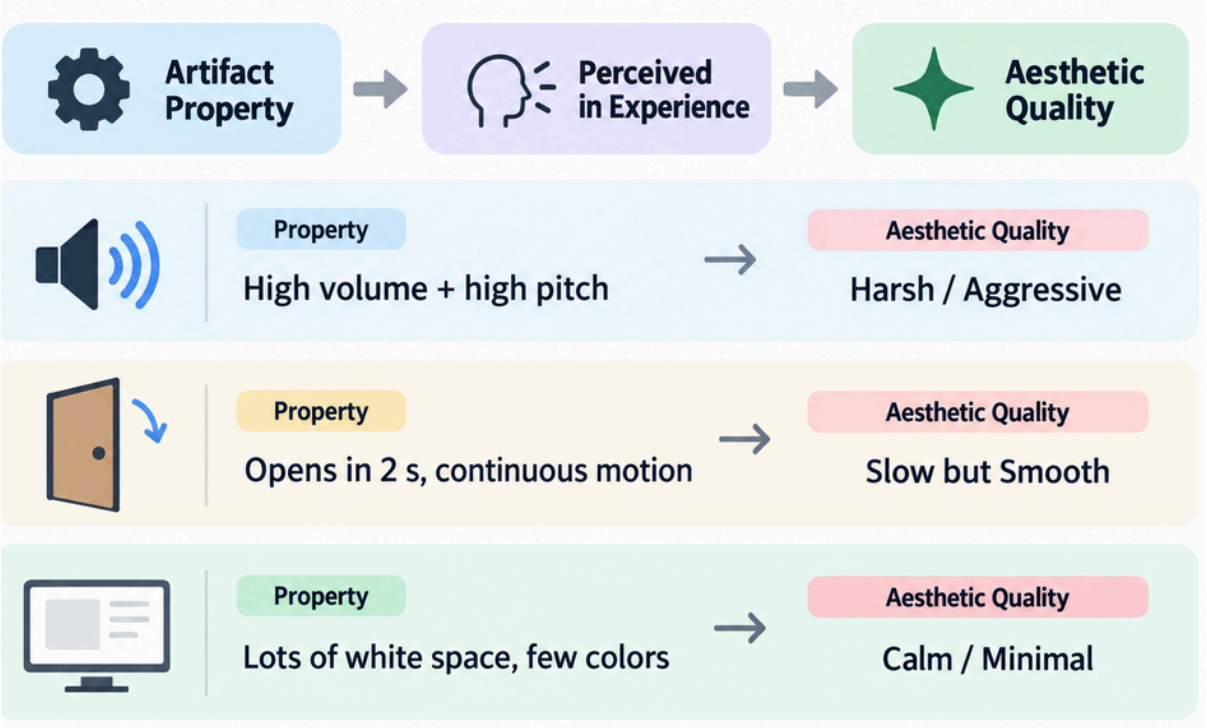
An aesthetic quality is not the same as a physical or technical property.
- A transition may last 500 milliseconds.
- This is a measurable property.

When that transition is perceived as slow, smooth, abrupt or heavy, however, we are describing how that property manifests itself in experience.

For example, we can therefore distinguish:
Sound:
- Property: high volume and predominantly high frequencies.
- Aesthetic quality: shrill, aggressive.

Automatic door:
- Property: continuous opening lasting two seconds.
- Aesthetic quality: slow but smooth.

Interface:
- Property: plenty of empty space, few colours and few elements visible simultaneously.
- Aesthetic quality: restrained, calm, minimal.



The designer can configure the artefact's properties, but cannot directly determine the aesthetic qualities that will emerge.

They can formulate a hypothesis such as “This configuration might feel restrained and reassuring”, but must then verify how it is actually experienced.

We can represent the relationship as follows:
Artefact configuration → actual experience → perceived aesthetic qualities.

We have said that something can appear, behave and take on meaning in experience.
To better understand these three dimensions, we can use Donald Norman's Emotional Design model, which distinguishes three levels of processing: visceral, behavioural and reflective (Norman, 2004).
An important clarification is needed.
Norman does not propose these three levels as three categories of aesthetics.
His model concerns, more generally, the different levels through which we process our relationship with artefacts.
In the model adopted in this text, we use them as a lens to distinguish three dimensions through which aesthetic qualities can emerge.

We can summarise them as follows:

- Visceral → how something presents itself to the senses.
- Behavioural → how something acts and reacts.
- Reflective → what something means to us.

At the visceral level, we are interested in qualities linked to immediate sensory perception.
Shape, colour, sound, movement, texture, temperature and vibration can help make something appear:

- Soft.
- Hard.
- Delicate.
- Aggressive.
- Light.
- Heavy.
- Energetic.
- Reassuring.
- Threatening.

A loud, high-pitched sound can feel shrill.
A uniform, matt surface can look restrained.
A brief, light vibration can feel delicate.

Visceral aesthetics need not be pleasant.
A danger signal can be intentionally aggressive and unpleasant precisely because it must attract immediate attention.

Norman's **behavioural level** concerns, more broadly, the artefact's use, operation, control and performance.
Within this level, we can isolate a specifically aesthetic dimension: behavioural aesthetics concerns the perceived qualitative character of how an artefact acts, reacts and changes state.

Think of two automatic doors.

- The first detects the person late, opens suddenly and closes quickly.
- The second detects the approach early, opens progressively and remains open for an appropriate time.

Both perform the same function: allowing passage.
Yet their behaviour can be experienced differently:

- The first may feel abrupt, jittery and unpredictable.
- The second may feel smooth, progressive and reassuring.

We can therefore attribute qualities to behaviour such as:

- Smoothness.
- Rhythm.
- Continuity.
- Precision.
- Timeliness.
- Predictability.
- Responsiveness.
- Stability.

Here, it is important not to confuse the behavioural quality of experience with behavioural aesthetic quality.

- Saying “I cannot get through the door because it closes too soon” describes a problem of use.
- Saying “The door moves abruptly and jitterily” instead describes the aesthetic character of its behaviour.

Naturally, the two aspects can influence each other.

Moreover, the same response from the artefact can have both a behavioural and a visceral dimension simultaneously.
When we press a button, for example, the system may: immediately change state + produce a sound.
We can distinguish:

- At the behavioural level, the response may be immediate, delayed, predictable or inconsistent.
- At the visceral level, the sound may be soft, shrill, discreet or intense.

The same event is therefore experienced through several dimensions simultaneously.

At the reflective level, the meanings and values the subject attributes to what they encounter come into play.
An artefact may appear:

- Prestigious.
- Professional.
- Nostalgic.
- Childish.

- Elitist.
- Rebellious.
- Technological.
- Traditional.
- Representative of one's identity.

These qualities depend strongly on the subject's knowledge, personal history and cultural and social context.
An old camera may be technically outdated and have little monetary value, yet feel precious and nostalgic to someone because it belonged to a person they were close to.

The same artefact can therefore take on different meanings for different subjects.
We can now relate the three levels to the initial formulation:
- Appears → visceral dimension.
- Behaves → behavioural dimension.
- Takes on meaning → reflective dimension.

These dimensions are not separate compartments.
A single artefact can be experienced on all three levels simultaneously.

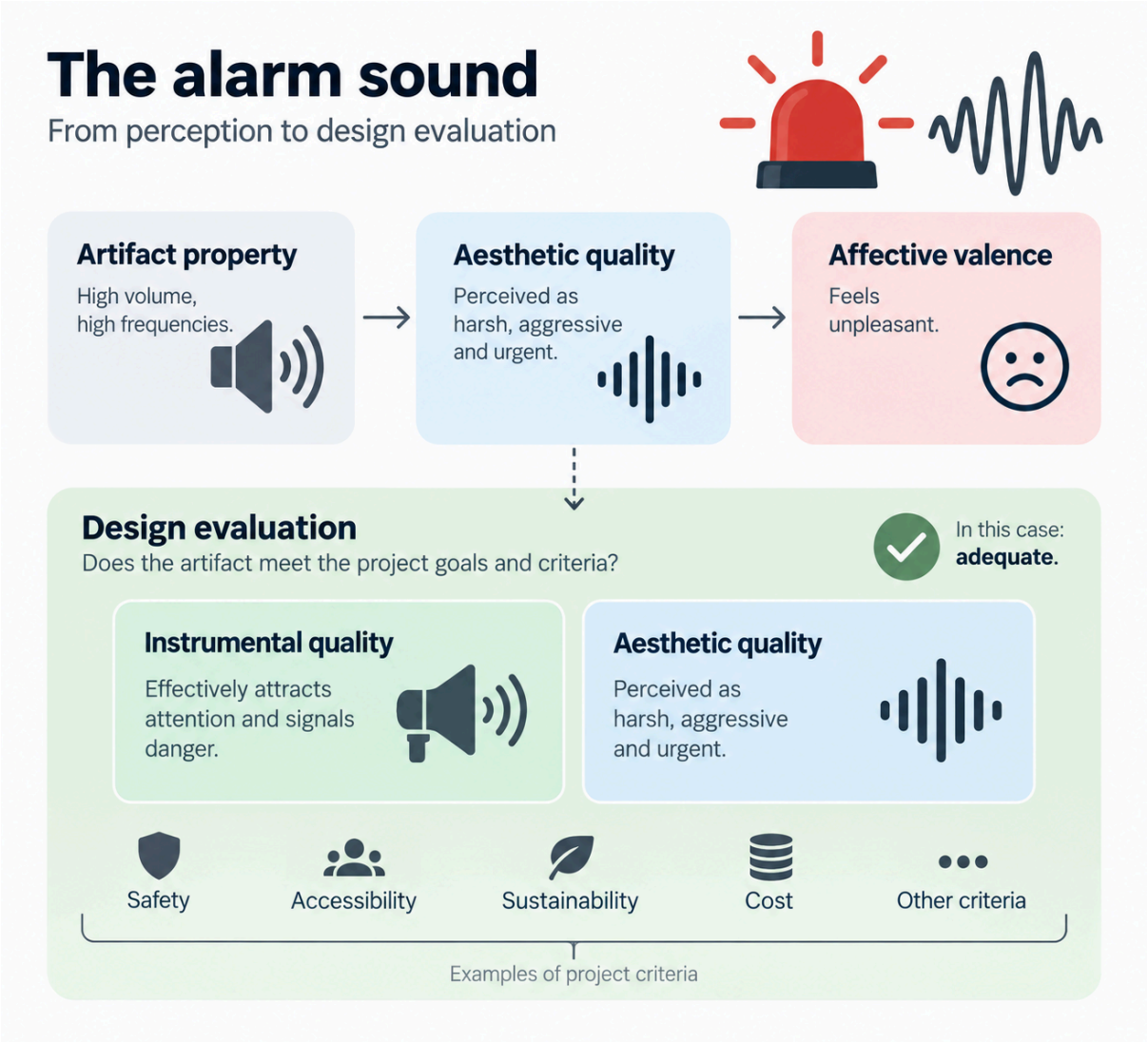
A car can have an immediately aggressive shape, respond quickly and precisely to acceleration, and simultaneously be interpreted as a status symbol.

Considering something aesthetically therefore means asking:
How does it present itself in my experience?
This question differs from:
How well does it allow me to achieve an objective?
The second concerns instrumental quality.

We can therefore distinguish:
- Instrumental quality → how well the artefact allows a purpose to be achieved.
- Aesthetic quality → how the artefact appears, behaves and takes on meaning in experience.

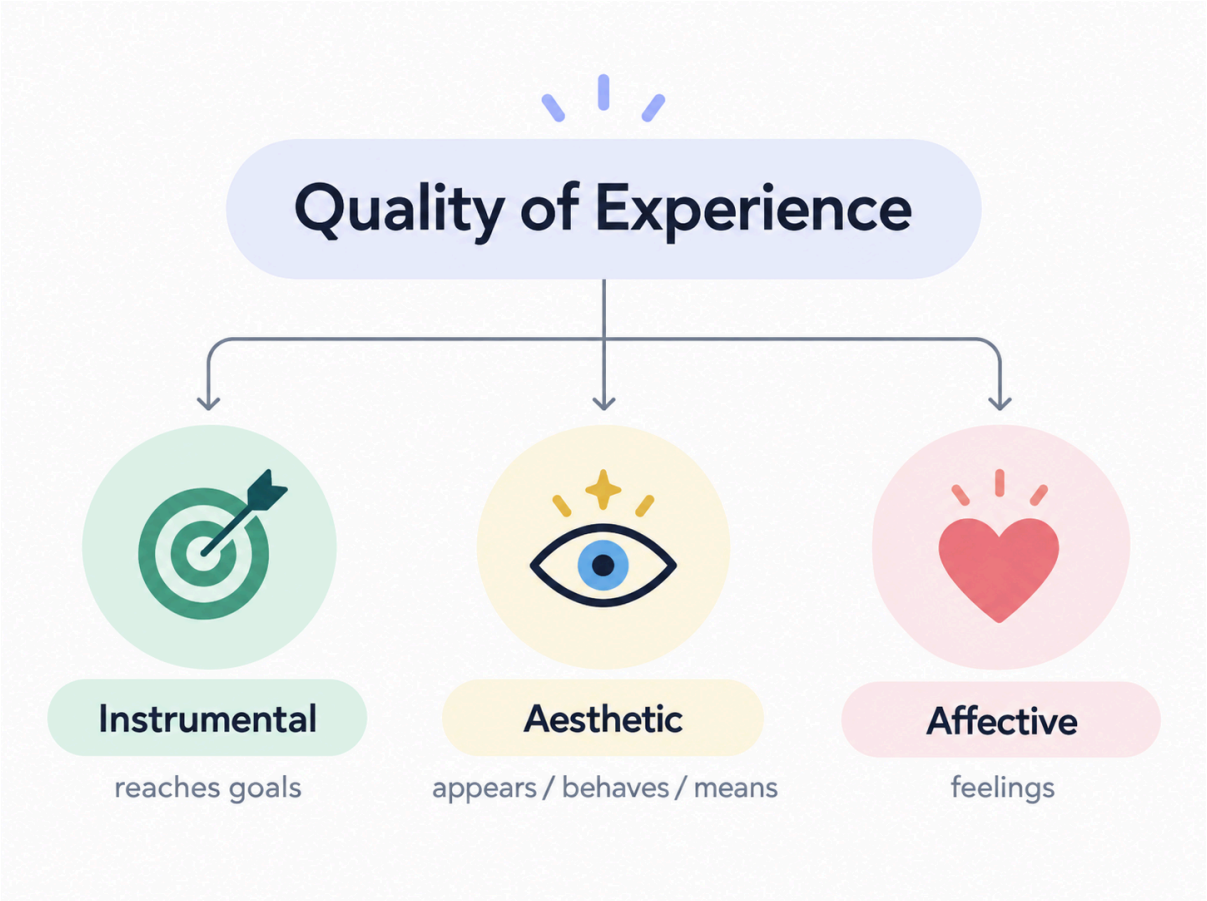
An artefact can work very well and be perceived as cold, abrupt or unpleasant.
Conversely, it can be elegant and pleasant while performing its function poorly.

These dimensions differ, although they can influence each other.
Think of a fire alarm.
Its sound can be shrill, aggressive and urgent.
We can distinguish:
- Aesthetic quality: the sound is perceived as shrill, aggressive and urgent.
- Affective valence: the sound feels unpleasant.
- Instrumental quality: the sound quickly attracts attention and signals danger.



We can therefore conclude that the quality of experience can be analysed through three dimensions: instrumental, aesthetic and affective.

- Instrumental dimension: how well the experience allows the subject to achieve their objectives.
- Aesthetic dimension: how what the subject encounters appears, behaves and takes on meaning.
- Affective dimension: which affective states and emotions emerge in the experience.



It is important to remember that these dimensions are not independent, but can influence each other.

Example
A door that reacts abruptly can lead to:
Behaviour perceived as abrupt
↓
Reduced sense of control
↓
Negative affective valence.

Further exploration
The designer cannot directly design the recipient's affective states, because emotions and lived feelings emerge from the relationship between subject, artefact and context.
They can, however, directly configure some properties of the artefact that indirectly help influence those states.
In particular, the designer acts mainly on the instrumental dimension — how well the artefact allows an objective to be achieved — and on the aesthetic dimension — how the artefact appears, behaves and takes on meaning in experience.
The affective dimension instead arises from the encounter between these designed characteristics and the recipient experiencing them.
This is why the designer does not directly control the affective dimension, but must

nevertheless consider it as one of the project's possible effects.



It is important for the designer to consider all three dimensions, because the configuration of each must be evaluated against the project's purposes.

Negative affective valence, for example, is not necessarily a flaw. In the alarm's case, the unpleasantness of the sound can directly contribute to its effectiveness by making the danger more likely to be noticed immediately.

Pleasantness concerns the positive affective valence of experience: something is pleasant when it generates states such as pleasure, comfort or gratification.
An aesthetic experience can instead be unsettling, aggressive, melancholy, tense or disturbing.
A horror video game can be designed precisely to produce tension and vulnerability.
The aesthetic question is therefore not “Is it pleasant?” but “How does what I am experiencing present itself qualitatively?”

The judgement “I like it”, instead, concerns an overall positive evaluation of the experience: we may like something because it works well, because it has aesthetic qualities we appreciate, because it produces positive affective states, or because of a combination of these aspects.
It therefore does not coincide with pleasantness. An experience can be affectively unpleasant and yet be evaluated positively overall.
A horror film can generate fear, tension and discomfort and, precisely because it effectively produces the sought-after experience, we may like it very much.
The overall evaluative question is therefore not “Is it pleasant?” but “Did I like this experience?”.

Beauty is also a different concept.
We can speak of **beauty** when we make an overall positive aesthetic evaluation.

- A tragic film can be judged beautiful while causing sadness.
- A photograph can be beautiful and unsettling at the same time.
- A building can be considered beautiful while appearing austere.

Likewise, something can be pleasant without necessarily being judged beautiful.

We can therefore distinguish:

- Quality of experience: how I am experiencing something overall.
- Aesthetic quality: a characteristic attributed to how something appears, behaves or takes on meaning, such as restrained, smooth, aggressive or professional.
- Affective quality: the affective character the experience takes on, such as pleasant, unpleasant, reassuring, frustrating, tense or gratifying.
- Instrumental quality: how well an artefact allows a purpose to be achieved.
- Pleasantness: the positive affective valence of experience.
- Liking: the overall positive evaluation of experience.
- Beauty: an overall positive aesthetic evaluation.

These distinctions matter because the designer need not try to make everything beautiful or pleasant.
They must ask what aesthetic character suits what the project aims to encourage.

- A toy may call for liveliness and surprise.
- A banking application may call for restraint and reassurance.
- A horror video game may call for tension and vulnerability.
- An alarm may call for urgency and aggression.
- A professional tool may call for precision, stability and control.

We can call **aesthetic appropriateness** the consistency between the aesthetic qualities emerging in experience and those relevant to the project's purposes.
This does not mean there is only one correct configuration.
Two artefacts can perform the same function and pursue the same outcome through different aesthetic characters.

The aesthetic dimension therefore also enters synthetic experience.
When the designer represents what could happen, they can also formulate hypotheses about how particular configurations might present themselves to the subject:

- This shape might look reassuring.
- This movement might feel smooth.
- This sound might be perceived as aggressive.
- This set of signs might communicate professionalism.

These are hypotheses, however.
Actual experience allows us to verify whether those qualities really emerge.
Configuration → actual experience → aesthetic qualities → affective response and interpretation → evaluation.

Aesthetics is therefore not decoration added at the end of the project.
Whenever how something appears, behaves or takes on meaning contributes to how it is experienced, an aesthetic dimension is involved.
The designer cannot directly decide that something will be elegant, reassuring or smooth.
They can configure shapes, materials, colours, sounds, movements, behaviours and signs, hypothesising that these may encourage particular qualities to emerge.
Verification belongs to actual experience.

Example
A designer must design an urban waterproof jacket.

Design direction
Design a jacket for people travelling on foot or by public transport who want protection from rain without looking as though they are wearing technical mountain clothing.

Desired outcome
The person stays protected from rain, can move comfortably, and perceives the garment as restrained, contemporary and suitable both for travel and for an informal workplace.
From this outcome, we can derive various decisions about the artefact's configuration:
- Waterproof but lightweight fabric.
- A cut loose enough to allow movement.
- An adjustable, easily stowed hood.
- Pockets accessible on the move.
- Seams and fastenings protected from rain.
- Low-saturation colours.
- Simple surfaces and few decorative elements.
- Unobtrusive technical details.

At this point, we can analyse the same garment through the chapter's different dimensions.

Instrumental quality
The jacket effectively protects against rain, allows freedom of movement, makes pockets easy to reach and maintains an adequate level of comfort. Instrumental quality concerns how well the artefact allows a purpose to be achieved.

Visceral aesthetics
The matt fabric, low-saturation colours, continuous surfaces and clean cut may be perceived as restrained, clean, light and minimal.
These qualities do not coincide with the garment's physical properties. “Matt black fabric”

is a property; “restrained” is an aesthetic quality that emerges in experience. This is the same distinction the chapter makes between artefact property and perceived quality.

Behavioural aesthetics
The jacket can also have aesthetic qualities relating to how it behaves during use.

For example:
The zip slides easily → the hood opens without catching → the fabric follows movement → the pockets are reached without difficulty.

Its overall behaviour might be experienced as: smooth, precise, controlled, reliable.
We are not describing the jacket's colour or appearance, but the qualitative character of the dynamics through which the artefact responds during interaction, exactly as with the automatic doors in the chapter.

Reflective aesthetics
The same jacket can also take on meanings for the wearer.
One person might perceive it as: professional, urban, discreet, contemporary.
Another might consider it: cold, impersonal or too technical.

Here the reflective dimension comes into play: meaning depends on the person's history, culture, identity and context.

This is particularly important in fashion, because wearing an artefact also means using it to present oneself to others and build one's identity.

The design point
The fashion designer cannot directly decide:
“This jacket will be perceived as elegant and reassuring.”

They can, however, configure particular properties — cut, materials, colours, proportions, details, fabric behaviour — hypothesising that these may encourage those qualities to emerge.

We would therefore have:

```
Garment configuration
↓
Fabric, cut, colour, details, fit, behaviour
↓
Actual experience
↓
Aesthetic qualities
Restrained, smooth, professional, technical...
↓
Affective valence
Pleasant, reassuring, unpleasant...
↓
Design evaluation
```

The jacket might not be judged particularly “beautiful” by everyone and still be appropriate as a design if the emerging qualities are consistent with the experience the project aimed

to encourage.

Evaluating experience

When we design the conditions of an experience, we must also be able to evaluate it.

This does not, however, mean simply assigning it a number.
Experience cannot be reduced to a single objective measure.
We can measure some aspects — for example time, errors, abandonment and frequency of use — or collect evaluations through questionnaires, interviews and observations.
None of these data, however, is on its own identical to the experience as a whole.

We may know that a person completed an operation in thirty seconds, but this does not yet tell us whether the experience felt simple, stressful, reassuring or confusing.

To evaluate an experience, we must therefore gather different kinds of evidence, relate them and make a reasoned judgement (Hassenzahl & Tractinsky, 2006; ISO, 2019).
Before doing so, however, we must know what we are evaluating.
During the course, we have encountered several conceptual tools that may seem similar but actually answer different questions.

We can distinguish four.

- In relation to what must the experience have value? → The areas relevant to the project.
- What value does the experience have in relation to the result? → Instrumental value and autotelic value.
- Through which levels is the relationship with the artefact built? → Visceral, behavioural and reflective levels.
- What ultimately happens to the recipient? → The outcomes of experience.

These are not four successive stages. They are four different questions we can ask of the same experience.

The areas relevant to the project
An experience can succeed in one respect and fail in another.
A system may allow an activity to be completed perfectly but take too long. It may be easy to use but difficult to understand. It may work well for its direct users while creating problems for others.

Before evaluating a project, we must therefore establish which aspects are relevant to its purposes and recipients.
What follows is not a definitive classification of experience.
It is a repertoire of questions that can help the designer avoid overlooking important aspects.

- Functional — Does it allow what it is supposed to allow? An appointment booking form, for example, must actually enable the booking to be completed.
- Practical — What does it cost in time, effort, attention and number of steps? A system may work correctly but demand excessive effort.

- Epistemic — Does it enable understanding, knowledge or orientation? A consumption chart, map or information dashboard does more than enable actions: it makes information understandable.
- Symbolic — What does it mean to the subject? What does it communicate about their identity, values or the image they want to build of themselves?
- Relational — How does it change relationships between people? The arrangement of classroom tables, for example, can encourage predominantly teacher-led interaction or facilitate exchanges between students.
- Social — What effects does it have on people who do not use the artefact directly? An exclusively digital service can work very well for some users while excluding others.
- Temporal — What happens over time? Can the artefact be maintained, repaired, updated, reused or disposed of? Two products that seem equivalent at purchase can behave very differently after a few years.

Not all these areas have equal importance in every project.
A project must therefore establish:
Which of these aspects are relevant here, and what weight should they carry in evaluation?

Others can also be added. The repertoire serves as a checklist, not a closed set of categories.

Instrumental value and autotelic value
A second question concerns the relationship between experience and what it allows us to achieve.
The same activity may have value mainly for its result, or also for the very fact of being experienced.
We can distinguish two forms of value.

Instrumental value concerns what an experience allows us to achieve.
The experience functions as a means to a further result.
- I take a bus to get to work.
- I fill in a form to obtain a document.
- I use a screwdriver to drive a screw.

In all these cases, the activity mainly serves to achieve something.

We can instead call autotelic the value an experience possesses independently of an external result.
An experience has autotelic value when at least part of its value lies in the very fact of being experienced (cf. Csikszentmihalyi, 1990).
- Walking can serve to reach a place, but we may also walk because we enjoy it.
- Cooking can serve to obtain food, but a person may also appreciate the preparation process.
- A video game is not normally played to reach the final screen as quickly as possible: much of its value lies precisely in the activity beforehand.

Instrumental and autotelic are not mutually exclusive categories of experience.

The same experience can possess both values.

We can test this with a simple question:
If we could obtain the same result immediately, completely eliminating the journey needed to reach it, would we feel we had lost something?

- If the answer is no, that journey's value was predominantly instrumental.
- If the answer is yes, at least part of the experience also had autotelic value.

This does not, however, mean that autotelic and aesthetic are synonyms.
An aesthetic quality can contribute to both instrumental and autotelic value.

Think of the click produced by a lock.
The sound can be perceived as crisp and precise: these are aesthetic qualities.
That click can inform us that the lock has closed correctly: it therefore also has an instrumental function.
But we may simultaneously appreciate the sound and mechanical sensation for the simple pleasure of experiencing them: in this case, they also contribute to the experience's autotelic value.

The three aspects can therefore coexist.

Example
Take a moka pot.

Using it clearly reveals the difference between instrumental and autotelic value.
From an instrumental perspective, the objective may simply be: obtain a cup of coffee.

If an automatic machine immediately delivered an identical coffee, the result would still be achieved.

But someone may also value the process: measuring the coffee, filling the filter, screwing the moka pot together, feeling the resistance of the thread, waiting, hearing the gurgling that announces the rising coffee.

These steps take time and do not necessarily make the process more efficient.
Yet they can be appreciated for how they are experienced.

In this case, the moka pot experience also has autotelic value.
The question becomes:
If a machine provided the same coffee at the press of a single button, what would we miss?

- If the answer is “nothing”, the experience had mainly instrumental value for us.
- If, instead, we miss the ritual, gesture, sound or anticipation, part of the value also lay in the journey.

This explains why there is not necessarily a single best design solution.
An automatic machine and a moka pot may pursue similar purposes while offering different relationships between instrumental and autotelic value.

Visceral, behavioural and reflective levels

The distinction between instrumental and autotelic should not be confused with Donald Norman's three levels either.
The visceral, behavioural and reflective levels answer a different question:
Through which levels is the relationship between subject and artefact built?

- At the visceral level, immediate responses to sensory characteristics come into play.
- At the behavioural level, action, control, operation and the artefact's responses come into play.
- At the reflective level, interpretation, memory, values, identity and meanings come into play (Norman, 2004).

The same instrumental or autotelic value can therefore emerge through different levels. Driving a car can have instrumental value because it enables someone to reach a destination, but a person may also appreciate the car's behaviour, the engine's sound or the symbolic meaning attributed to driving.
The axes intersect, but they do not describe the same thing.

The outcomes of experience
One final question remains: What does the experience leave in the recipient?
There is no single outcome.

An experience can produce:

- Emotions and affective states.
- Understanding and knowledge.
- Learning.
- Memories.
- Changes in attitude.
- Decisions.
- Subsequent behaviours.
- Meanings and evaluations.

For example, after using a system, a person may feel satisfied, have learned how it works, remember it as reliable and decide to use it again.

These are different outcomes of the same experience.
Emotion is therefore important, but it is not the only result.
Nor should we confuse outcomes with areas of evaluation.

- Saying that a system is difficult to use concerns the practical level.
- Saying that this difficulty produced frustration concerns one of the experience's affective outcomes.
- Saying that the person learned to use it concerns a cognitive outcome.
- Saying that they later decided to abandon it concerns a behavioural outcome.

Separating these levels helps us understand what happened and why.

Example
Imagine someone using an automated ticket machine for the first time to buy a train ticket. The system works, but requires many steps and some information is unclear. During use,

the person must go back several times before completing the purchase.
This difficulty mainly concerns the practical level of experience: the operation requires more time, attention and effort than necessary.
But different outcomes can arise from the same experience.

- Affective outcome: the person feels frustration and anxiety.
- Cognitive outcome: they eventually understand how the procedure works.
- Learning: next time, they will know which steps to take.
- Memory: they may remember that ticket machine as complicated.
- Change in attitude: they may develop distrust of that system.
- Decision: they may decide to buy their ticket through the app in future.
- Subsequent behaviour: at the next station, they avoid the automated ticket machine.
- Evaluation: they may conclude that “these machines are difficult to use”.

All these effects arise from the same experience, but they are not the same thing.

Why break experience down?
At this point, it may seem that we are needlessly complicating something that could be evaluated simply by asking:
“Was it a good experience?”

The problem is that an overall answer tells us what happened, but often not where to intervene.
Imagine people evaluate a service negatively.

- The problem may be functional: it does not allow the operation to be completed.
- It may be practical: it works, but requires too many steps.
- It may be epistemic: people do not understand what is happening.
- It may be aesthetic: the system's responses are perceived as abrupt and aggressive.
- It may be symbolic: the service communicates values people do not identify with.
- Or there may be social problems affecting people other than direct users.

An overall evaluation tells us that a problem exists.
Breaking it down helps us understand which problem it is.
Evaluating experience therefore means continually moving between two scales:
Looking at experience as a whole and breaking it down into the different aspects that may explain what happened.

We can therefore summarise the model through four questions.

- In relation to what are we evaluating the experience? → Functional, practical, epistemic, symbolic, relational, social, temporal and any other relevant areas.
- Why does that experience have value? → For what it allows us to achieve, hence instrumental value; for the very fact of being experienced, hence autotelic value; or for both.
- Through which levels is the relationship with the artefact built? → Visceral, behavioural and reflective.
- What ultimately happens to the recipient? → Affective, cognitive, behavioural, memory-related, symbolic outcomes and other relevant effects.

Alongside these is the aesthetic dimension, already addressed in the previous chapter, which describes how the artefact's configuration is qualitatively perceived, experienced and interpreted.

None of these tools, taken alone, describes the whole experience.

Instead, they allow us to examine the same experience through different questions, avoiding confusion between operation and how it is experienced, the result and the value of the journey, and the project's areas of concern and the effects that actually emerge.

Evaluating experience therefore means, first of all, knowing what we are trying to understand.

The problem

In the definition of anthropocentric design, we said that the project is oriented towards people and evaluated against what happens in their experience.

In practice, however, we do not work on experience in the abstract. We must understand a situation, establish what change we want to pursue and identify where intervention might be useful.

At the root, we often find **a need**.
A need is a condition a person requires or wishes to reach.

For example, a person may need to find their way around a building, understand information, sit comfortably, get to work on time or express their identity through what they wear.

A need can take the form of a necessity, when it concerns a condition considered necessary in the person's situation, or a desire, when it concerns a preferred or sought-after condition. Hereafter, we will use need as the general term.



The existence of a need does not, however, necessarily imply a problem.
If I want to sit comfortably and have a suitable armchair available, I can meet my need without particular difficulty.
A situation becomes problematic when we encounter one or more obstacles between the current and desired conditions.
An obstacle is a condition that makes meeting a need difficult or impossible.

We can therefore speak of a problematic situation when there is a discrepancy between a current and a desired condition, and obstacles make the transition from one to the other difficult or impossible.

Think of a person who needs to reach a building's upper floor.

- Need: reach the upper floor.
- Current situation: the only available connection is a staircase.
- Obstacle: the person uses a wheelchair and cannot navigate it independently.

The staircase is therefore not a problem in absolute terms. It becomes an obstacle in the relationship between a particular situation, need and recipient.

Needs are not always stated
The designer does not necessarily receive a clear description of people's needs from them. More often, they can observe signals such as frustration, errors, abandonment, difficulties, alternative strategies or habits built around a problematic situation.
A person may, for example, spend ten minutes every day on a complicated operation without considering it a problem any longer, simply because they have become used to it.

The designer can then formulate a hypothesis:
Perhaps there is a need the current situation does not adequately allow to be met.

The need is therefore not simply “read” in the person.
It is hypothesised from observations, information and interpretations, and must be verified (Norman, 2013).

The need thus helps define the project's orientation: it clarifies why a situation deserves attention and what general change we want to move towards.

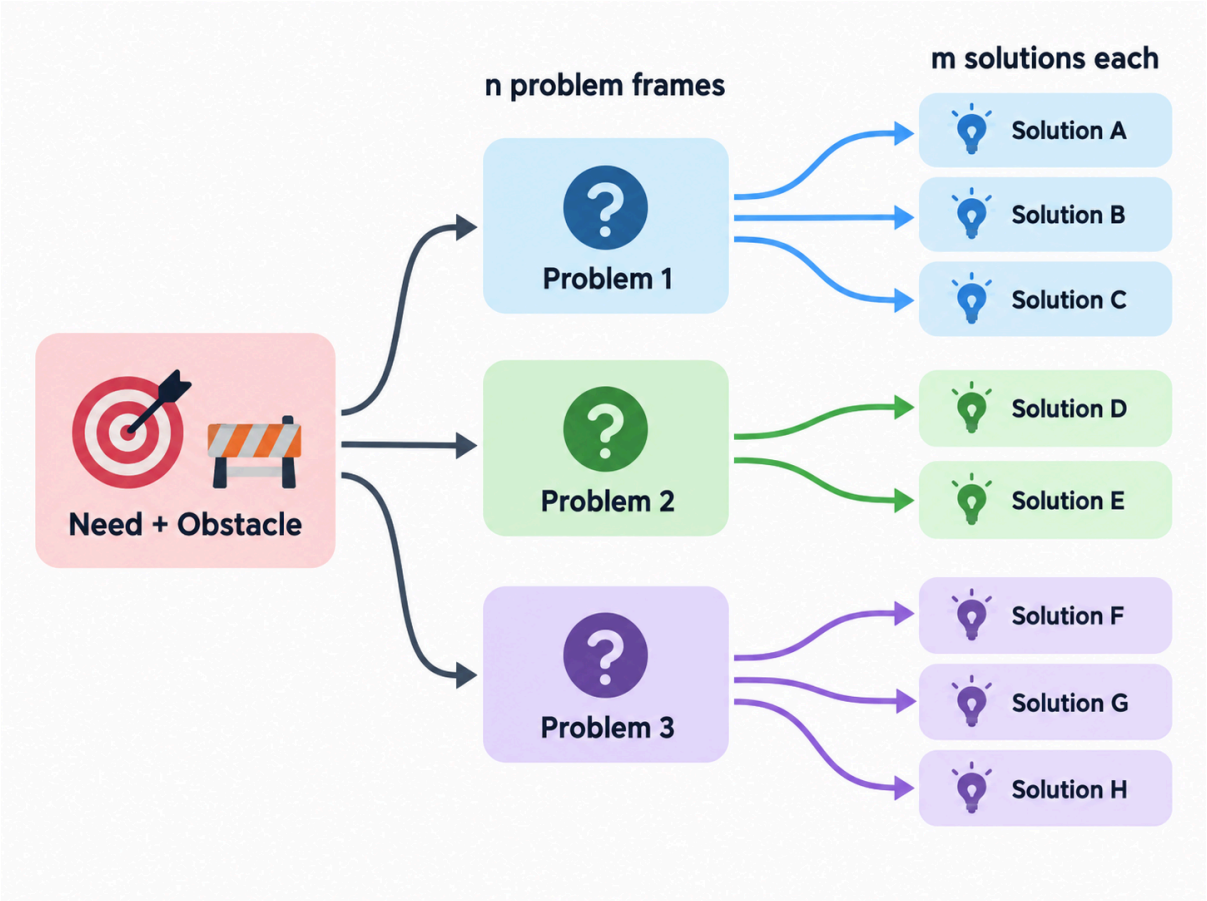
But it does not yet tell us where to intervene.
To understand that, we must represent what is happening in the situation.
This is where synthetic experience, introduced in the previous chapter, comes into play: a partial representation of what happens or could happen to the recipient in relation to the adopted orientation.

Imagine a person who wants to get to work on time.
We can represent the situation as follows: distant home → need to travel → variable traffic → unreliable transport → rigid schedule → risk of arriving late

This representation is not yet the design problem.
Rather, it allows us to observe the situation and identify different elements we could act on: distance, traffic, transport reliability, schedule rigidity or the very need to be physically present.
And here a fundamental step emerges:
The problem is not simply given: it must be formulated (Dorst, 2015).

The same problematic situation can be interpreted in different ways.
Problem formulation is how the project selects and relates the need, current situation and obstacles considered relevant.

The same need can therefore generate many possible formulations.
We can represent the relationship as follows:
1 need → n problem formulations → m possible solutions for each formulation



Let us return to the punctuality example.
One possible formulation might be:

The person lacks a sufficiently reliable transport system to reach the workplace on time.

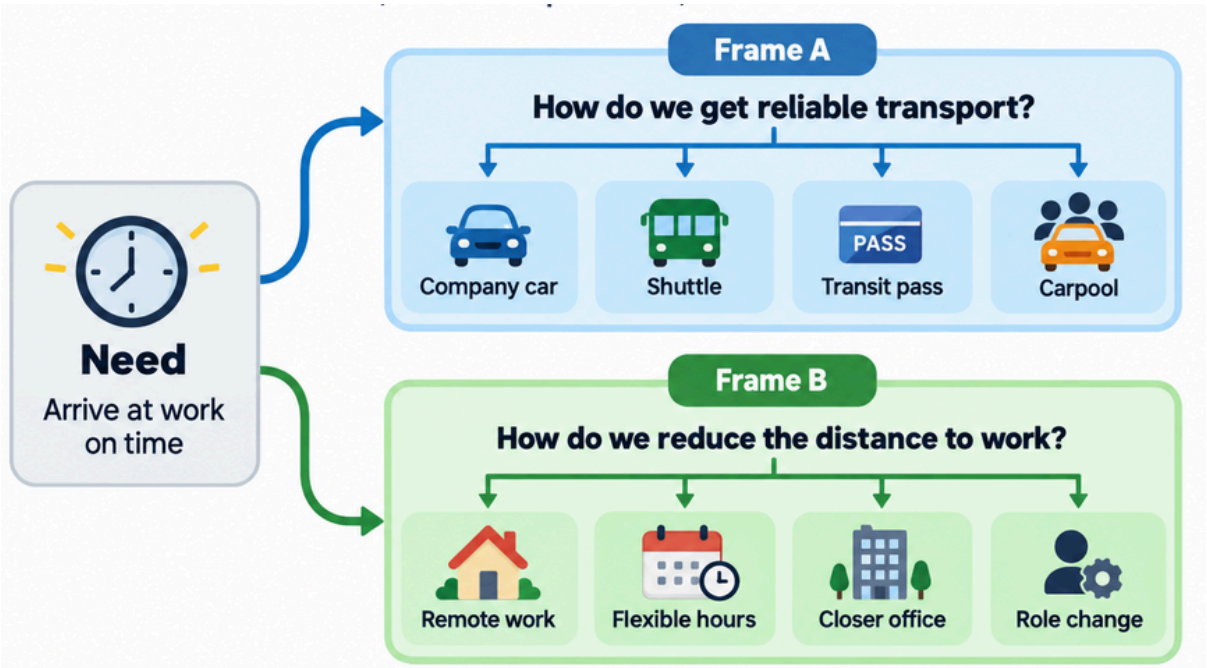
This formulation directs attention towards solutions such as:

- A shuttle service.
- Car pooling.
- A different transport system.
- Better organisation of travel.

But we can read the same situation differently:
Punctuality depends on the need to physically reach a distant workplace at a fixed time.
This formulation opens different possibilities:

- Remote working.
- Flexible hours.
- A closer workplace.
- A different organisation of activities.

The original need has remained essentially the same.
What changed is how we formulated the problem and, consequently, the space of solutions we can see.
Deliberately changing this interpretation is called **problem reframing** (Dorst, 2015).



Reframing a problem means changing how we interpret and represent a problematic situation to explore different possibilities for intervention.

It does not simply mean rewriting the same sentence.
It means asking:

- Have we identified the most useful point to act on?
- Is there another reading of the situation?
- What are we bringing to the foreground?
- What are we leaving in the background?

Every formulation makes some possibilities more visible and others less visible.
This is particularly important when the designer receives an already formulated request.
Phrases such as:

- “We must create an app.”
- “We need a new website.”
- “We need to add a button.”

Do not necessarily describe problems.
They often already describe a hypothesised solution.

For example, the request “We need a booking app” may conceal a more general need: “People must be able to book easily.”

Once the need is recovered, the app becomes just one possible design direction again.

Suppose we adopt this formulation: variable journey times make it difficult to know when to leave to arrive at work on time.
We have identified a possible focus for the project.

We can now ask:
What do we want to make happen to the recipient in relation to this condition?
The answer might be:
The person can predict accurately enough when to leave to arrive on time.

This is the desired outcome.
The problem and desired outcome are not the same:

- The problem identifies the condition we decide to act on.
- The desired outcome identifies what we want to encourage in relation to that condition.

Together, they help establish the design direction.

We can therefore represent the transition as follows:

```
ORIENTATION
What general change do we want to pursue?
↓
SYNTHETIC EXPERIENCE
What is happening in the situation?
↓
POSSIBLE PROBLEM FORMULATIONS
Where could we intervene?
↓
DESIGN DIRECTION
Which problem do we decide to act on and what outcome do we want to
encourage?
```

A problem formulation can also be turned into a design question.

For example, the problem “variable journey times make it difficult to know when to leave” can generate different design questions:

- How can we help a person predict when to leave to arrive on time?
- How can we reduce punctuality's dependence on being physically present somewhere at a fixed time?

The design question is not yet a solution. It keeps the exploration of possibilities open.

Once the design direction is established, the process continues through the configuration described in the previous chapter: criteria are formulated, ideas generated, possibilities compared and concrete decisions made about the intervention.

Many different solutions can therefore exist for the same direction.
A solution is a design configuration that seeks to meet a need by acting on the problematic situation.
A solution need not completely eliminate the obstacle.

It may remove, reduce, bypass or compensate for it, or change the conditions that make it relevant.

- A ramp, for example, does not make stairs navigable for a wheelchair user: it creates an alternative route.
- Remote working does not physically reduce the distance between home and office: it changes the situation by making that distance less relevant.

It is therefore important to remember that a solution must do more than solve the formulated problem well: it must help meet the need that made the problem relevant.

It is possible to solve the wrong problem very well.
Evaluation may therefore lead us not only to change the solution, but also to question the problem formulation (Dorst, 2015; Norman, 2013).
If our observations contradict our hypotheses, we can revise the configuration, desired outcome, design direction, problem formulation or even the initial orientation.

The process therefore remains iterative.
We can summarise the entire reasoning as follows:

```
ORIENTATION
Need and change pursued.
↓
SYNTHETIC EXPERIENCE
Understanding the situation.
↓
n PROBLEM FORMULATIONS
Possible points of intervention.
↓
DESIGN DIRECTION
Adopted problem + desired outcome.
↓
CONFIGURATION
Criteria, ideas and decisions.
↓
m POSSIBLE SOLUTIONS
↓
EVALUATION
Comparison with what actually happens.
↺ Revision
```

This diagram does not mean every project must necessarily start at the beginning.

A brief may already establish the problem, desired outcome or even the type of artefact to create. In these cases, some decisions have already been made and the designer enters the process at a later point.
The distinction remains useful, however, because it clarifies which decisions are given, which remain to be made and which might be reconsidered.

The problem is therefore not simply something the designer finds in reality.
The problematic situation is what they encounter; the problem formulation is how they choose to represent it so they can intervene through design.

Corrective and generative modes

So far, we have described a process that starts from a problematic situation.
A person has a need, something makes meeting it difficult, and the designer formulates the problem and seeks possible solutions.
We can represent it in simplified form as follows:
Need → problem → idea → solution.

This chain describes a very important part of design work.
But it does not describe all design.
A project does not always begin because something is not working or a condition needs correcting.
Sometimes a project begins with a different question: “What could be possible?”

In the model adopted in this text, we will therefore distinguish two ways of initiating a design process:

- Corrective mode: starts from a discrepancy between a current and a desired condition and seeks to act on it.
- Generative mode: starts by exploring a possible condition and seeks to make it concrete enough to be experienced, understood and evaluated.

These are not two rigid categories of design.
They are two different design logics that can alternate and combine in practice.

In corrective mode, there is a current situation that is considered problematic in relation to a particular need.
The problem may already have been formulated by a client, a commissioning party or users, but it can also be identified by the designer through research, observation and analysis.
Someone need not already have said: “This is a problem.”
People may have become accustomed to a difficulty, developed ways around it or be unable to formulate it clearly.
The designer can observe these signals, reconstruct the need and formulate the problem.
The essential point of corrective mode is therefore not that the problem is already known.
It is that the project takes an existing condition it wants to change as its reference.

Its general structure can be represented as follows:
Need → problematic situation → problem formulation → possible solutions.

Corrective mode can produce small improvements, but also profound transformations.
A current problem does not oblige the designer to produce a slightly better version of what exists.
A travel difficulty, for example, may lead to designing a more efficient vehicle, but could also lead to completely rethinking the relationship between work and physical presence.

What characterises corrective mode is therefore not the amount of innovation produced.
It is that the project's criterion arises from a discrepancy in relation to a current situation.

There is, however, another way to begin designing.
Instead of starting from what does not work today, we can start from something that could exist.
In the model adopted in this text, we will call this approach **generative mode**.
Its structure can be represented as follows:
Aspiration → possibility → proposal.

It does not necessarily seek to correct an existing situation.
It seeks to open a space of possibilities.
It can arise from a new technology, a cultural vision, an emerging practice, a research question or simply the intuition that something could be configured differently.

The starting point of generative mode is what we will call aspiration.
An aspiration is an orientation towards a possible condition the project wants to explore, without that condition necessarily deriving from an already identified problem.

An aspiration does not yet describe an artefact.
It does not say: “We must design this object.”
Rather, it indicates a direction.
For example:

- “Music could accompany a person wherever they are.”
- “A domestic environment could adapt autonomously to the activities taking place within it.”
- “We could make visible future consequences that are difficult to imagine today.”

An aspiration need not describe something desirable.
A project can also explore an unsettling or undesirable possibility precisely to allow us to understand and discuss it (Dunne & Raby, 2013).
An aspiration identifies a possible condition we consider meaningful to explore. This does not necessarily imply that we want to realise it.
An aspiration therefore mainly indicates: “There is a possibility worth exploring.”

An aspiration can arise from very different sources.
For example:

- A new technology makes something possible that was not possible before.
- Observing people reveals emerging behaviours, values or practices that suggest possibilities not yet developed.
- There is dissatisfaction with the state of things that has not yet been translated into a precise problem.
- The designer takes a position on how the home, work, city or relationships might change.
- Research intentionally explores scenarios that do not exist today.

Generative mode can therefore also use research with people.
What changes is the role of that research.

- In corrective mode, it may mainly serve to understand an existing situation, identify needs and formulate problems.
- In generative mode, it may instead provide material, tensions, values and signals from which to imagine possibilities that people themselves might not have been able to formulate.

We are therefore not simply asking: “What future product would you like?”
We seek to understand people, contexts and transformations well enough to formulate new possibilities.

From an aspiration, we can generate different possibilities.
A possibility is a possible configuration of reality through which an aspiration could take shape.

The aspiration “Music could accompany us everywhere” does not determine a single possibility.
We might imagine:
- A pocket-sized music device.
- A system integrated into clothing.
- A service that makes one's music available anywhere.
- An environment that recognises the person and automatically plays their content.

A single aspiration can therefore open many paths.
Here too, we can represent a one-to-many relationship:
1 aspiration → many possibilities.

Choosing which possibility to explore is already a design decision.
In corrective mode, we can study an existing situation.
In generative mode, however, part of the subject of research does not yet exist.
We cannot observe it directly.
We must first make it concrete enough to reason about.
This is why synthetic experience plays a particularly important role in generative mode.
Since the condition we want to explore does not yet exist, we must build a representation of what could happen if that possibility were realised.

In the early stages, the question is not necessarily: “Do people want it?”
Because there may not yet be anything concrete enough to understand and evaluate.
The initial question may be: “Is this possibility coherent and defined enough to be represented and explored?”
Later, however, desirability, comprehensibility, relevance and consequences can and must also be explored.

We must therefore first make it possible to experience the possibility.
This brings us to the proposal.

A proposal is a design artefact that makes a possibility concrete enough to be experienced, understood, discussed or evaluated.
A proposal need not be a market-ready product.

It may be:

- A prototype.
- A concept.
- A model.
- An interactive scenario.
- A technology demonstrator.
- A speculative artefact.

Its task is to allow something that previously existed only as a possibility to enter experience.

Describing an autonomous car and riding in an autonomous car prototype, for example, are not equivalent.

- In the first case, we can imagine the situation.
- In the second, we can experience at least some aspects of it and discover reactions, difficulties and consequences an abstract description might not have revealed.

In generative mode, a prototype can therefore function not only as a preliminary version of a future product, but as a tool for thinking through experience.

But how do we evaluate the proposal?
In corrective mode, a central question is: “Has the problem been adequately addressed?”
In generative mode, that question may make no sense, because the project may not have originated in a problem.

We must therefore use different criteria.
We can ask:

- Does the proposal make a previously hard-to-imagine possibility understandable?
- Does it allow people to respond to that possibility in an informed way?
- Does it reveal consequences, opportunities or problems that were not visible before?
- Does it produce new questions?
- Does it help us understand what would be needed to make that possibility feasible?
- Does it allow an informed decision that the possibility is not worth pursuing?

Rejecting a proposal can therefore be a useful result.
If a possibility is made concrete enough for people to understand it and reject it knowingly, the project may still have produced knowledge.
In generative mode, an experiment's value does not necessarily coincide with its transformation into a product.

A proposal can therefore succeed even when it leads to the conclusion: “This path does not work”,

- In corrective mode, a solution that does not solve the problem must be revised.
- In generative mode, however, a possibility explored and subsequently abandoned may still have reduced uncertainty: “Now we know something we did not know before.”

This principle is particularly evident in some research and development activities.

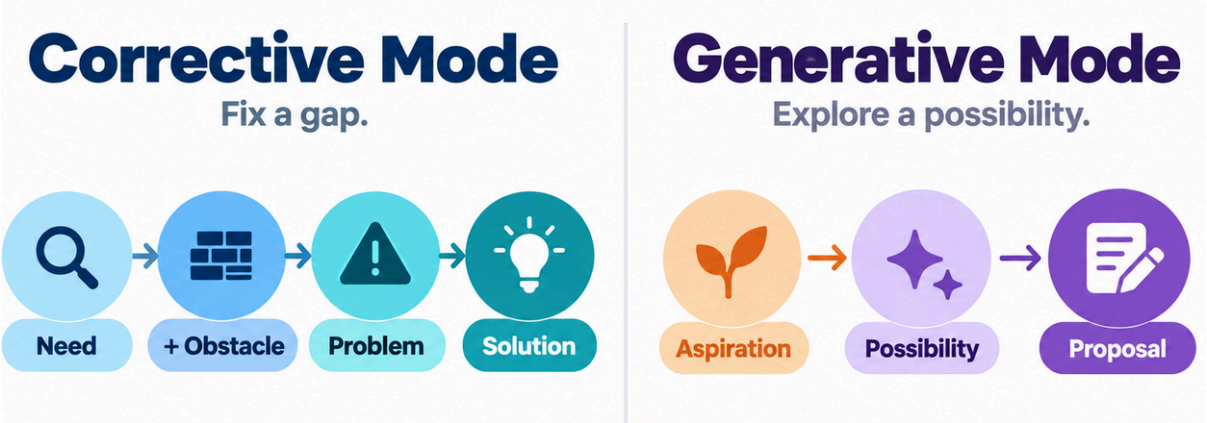
Part of research and development operates in generative mode: it explores technologies, configurations and possible applications before a clearly defined product necessarily exists. Many prototypes will never reach the market.
This does not necessarily mean the activity was useless: it may have produced knowledge about what is technically possible, useful, undesirable or unpromising.

Take a particularly clear example of a generative approach: **speculative design**.
Speculative design can use artefacts designed not necessarily for production or sale, but to make a particular possibility concrete and open to discussion (Dunne & Raby, 2013).

For example, it can show:
- How domestic life might change if a particular technology became commonplace.
- What social consequences a new service might produce.
- What living in a particular future condition might mean.

The artefact thus becomes a tool through which a scenario can be experienced.
The project's success does not necessarily depend on anyone wanting to buy it.
It may depend on its ability to make the possibility clear enough to enable understanding, discussion, evaluation or criticism (Dunne & Raby, 2013).

These practices may also approach certain art forms; the boundary between speculative design and art is not always clear-cut.
What matters here is the proposal's design function: intentionally building an artefact through which a possibility can be experienced and questioned.



The distinction between corrective and generative modes is useful, but should not be taken too rigidly.
A real project can continually move between them.
We can imagine:
Aspiration → possibility → proposal.

The proposal is tried out and reveals a problem.
We then move to corrective mode:
Problem → possible solutions → change to the design.

During this correction, a new possibility may emerge:
New aspiration → new exploration.

The process can therefore continually alternate between the two modes.
The difference mainly concerns the perspective from which we are looking at the project at that moment.

- In corrective mode, we ask: “What must change in relation to the current situation?”
- In generative mode: “What could become possible?”

Example

We start in generative mode, specifically from this aspiration:
“Music could accompany a person without headphones or visible devices.”

Possibility
Integrate small directional speakers and sensors into a jacket.

Proposal
A prototype is made that plays music near the wearer's shoulders and neck.

At this point, some people try the proposal.
A problem emerges during testing:
In quiet or crowded environments, nearby people also hear the sound, causing disturbance and reducing privacy.

The project therefore moves into corrective mode.

Problem
Sound playback does not remain sufficiently personal.

Possible solutions

- Make the sound more directional.
- Automatically reduce volume when someone is nearby.
- Use vibrations or bone conduction.
- Combine different technologies according to context.

Modification of the proposal
The jacket detects its surroundings and automatically changes how it plays audio.

But this very correction can reveal a new possibility.
The system now has sensors, tactile feedback and the ability to adapt to context. The designer might therefore ask:
What if the garment were not only for listening to music, but became a personal interface capable of communicating information through sounds and vibrations?

We thus return to generative mode:

New aspiration
Clothing could become a context-sensitive personal interface.

New possibilities

Navigation through vibrations, tactile notifications, environmental signals, interaction with other devices.

These new possibilities allow new proposals to be explored, and so on.

The complete path would therefore be:

```
ASPIRATION
Music without headphones.
↓
POSSIBILITY
Audio integrated into clothing.
↓
PROPOSAL
Musical jacket.
↓
TEST
↓
PROBLEM
Disturbance and poor privacy.
↓
CORRECTION
Adaptive audio and alternative feedback.
↓
NEW POSSIBILITY
Clothing as a personal interface.
↓
NEW EXPLORATION
…
```

Generative mode may seem freer and more creative, but this is precisely why it presents some risks.

- Creating solutions in search of problems: a technology making something possible does not automatically mean that possibility is meaningful to someone.
- Self-indulgence: without a clearly defined problem, the designer may confuse what personally interests them with something genuinely worth exploring.
- Unverifiability: if a proposal arouses no interest, we cannot automatically defend it by claiming it was simply “ahead of its time”. A generative proposal must still meet criteria: it must make a possibility understandable, produce knowledge, generate a meaningful response or allow its consequences and feasibility to be explored.
- Generative mode can become an excuse to avoid confronting reality: exploring possibilities does not mean ignoring recipients, constraints, consequences or evidence. Even a generative project must eventually confront what actually happens when the proposal enters into a relationship with someone or something.

We can therefore summarise the distinction.

	Corrective mode	Generative mode
Starting point	A discrepancy in relation to a current condition.	A possible condition to explore.
Main question	What must change?	What could become possible?
Path	Need → problem → solution.	Aspiration → possibility → proposal.
What is verified	The solution's appropriateness to the problem and need.	The proposal's ability to make the possibility understandable, experienceable and evaluable.
Possible result	A problematic condition is changed.	Knowledge about a possibility is acquired.

Neither mode is superior to the other.

- Corrective mode enables us to understand and transform real situations.
- Generative mode enables us to explore what does not yet exist.

The designer must recognise which logic they are using, because the two ask different questions and require different criteria.

- Corrective mode starts from what is and asks what must change.
- Generative mode starts from what could be and asks how to make it concrete enough to understand.

Finally, here is a complete chain for generative mode:

```
ORIENTATION
Aspiration – which possible condition is worth exploring?
↓
SYNTHETIC EXPERIENCE
What could happen if this condition existed?
↓
POSSIBLE DIRECTIONS
In what ways could it take shape?
↓
DESIGN DIRECTION
Which possibility are we exploring and what outcome do we want to
encourage?
↓
CONFIGURATION
Criteria → ideas → decisions → development.
↓
PROPOSAL
Make the possibility experienceable.
```

```
↓
EVALUATION
What actually happens? What have we learned?
↺ Revision
```

Idea

In the previous chapter, we established two possible design paths:

- Corrective mode: need + obstacle → problem → solution.
- Generative mode: aspiration → possibility → proposal.

Both chains, however, are still missing a step.
We have seen how to formulate a problem and identify a possibility to explore. But neither a problem nor a possibility automatically produces what will be designed.

Between the starting point and what will be made, there is a leap.
That leap is the idea.

We can therefore complete the two chains:

- Corrective mode: need + obstacle → problem → idea → solution.
- Generative mode: aspiration → possibility → idea → proposal.

An idea is the initial representation of a possible design configuration.

- In corrective mode, the idea indicates a possible way to address a problem.
- In generative mode, it indicates a possible way to make a possibility concrete.

Even more simply:
The idea is the first bridge between what we want to achieve and something that could allow us to achieve it.

An idea, however, is not yet a solution or a proposal.
We might imagine a new door-opening system and later discover that it requires too much force, costs too much, is unsafe or does not produce the effects we wanted to encourage.

The idea nevertheless existed.
It simply did not pass the checks needed to become a valid solution.

- Between idea and solution, there is therefore development work: idea → trial → verification → modification → further verification → solution.
- The same applies in generative mode: idea → exploration → prototype → verification → modification → proposal.

Many ideas are therefore abandoned during the process.
This is not necessarily failure: generating alternatives, testing them and discarding some is a normal part of design work.

There is a second important point.

The same problem or possibility can generate many different ideas.
We can write:

- 1 problem → many possible ideas → many possible solutions.
- 1 possibility → many possible ideas → many possible proposals.

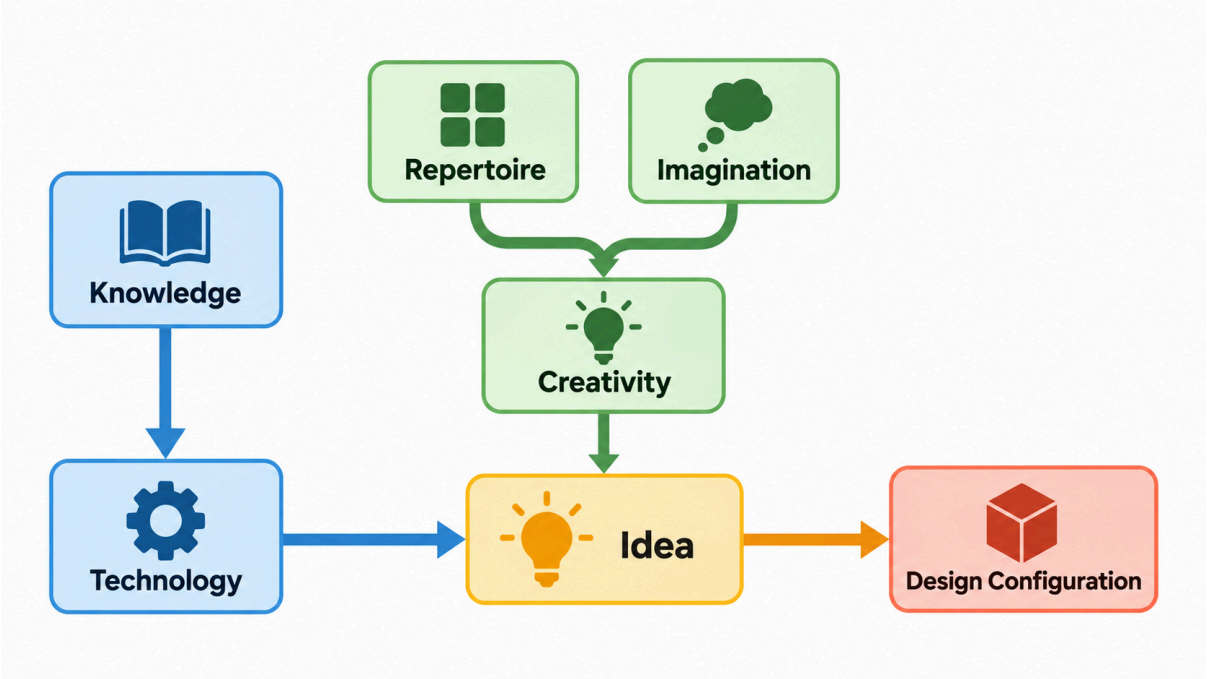
The designer's task is therefore not simply to “have an idea”, but to generate several, compare them and choose which are worth developing.

A design idea does not arise from nothing.
It arises from the encounter between what the project seeks, what the designer knows how to make possible and what they can imagine.

In the model adopted in this text, we can distinguish two paths contributing to idea generation:

- Knowledge → technology.
- Repertoire + imagination → creativity.

Technology and creativity serve different functions, but meet in the construction of the design idea.
Technology + creativity → idea → development → design configuration.



Technology
In everyday language, technology is often associated with computers, electronic devices, software or machinery.
In this text, we use the term more generally.
Technology is the organised set of means through which certain effects or results can be intentionally produced.

A computer is therefore technology, but technology is not synonymous with the digital.

A printing technique, construction system, manufacturing process or set of tools used to produce an artefact also belong to technology.

We can distinguish three fundamental components:

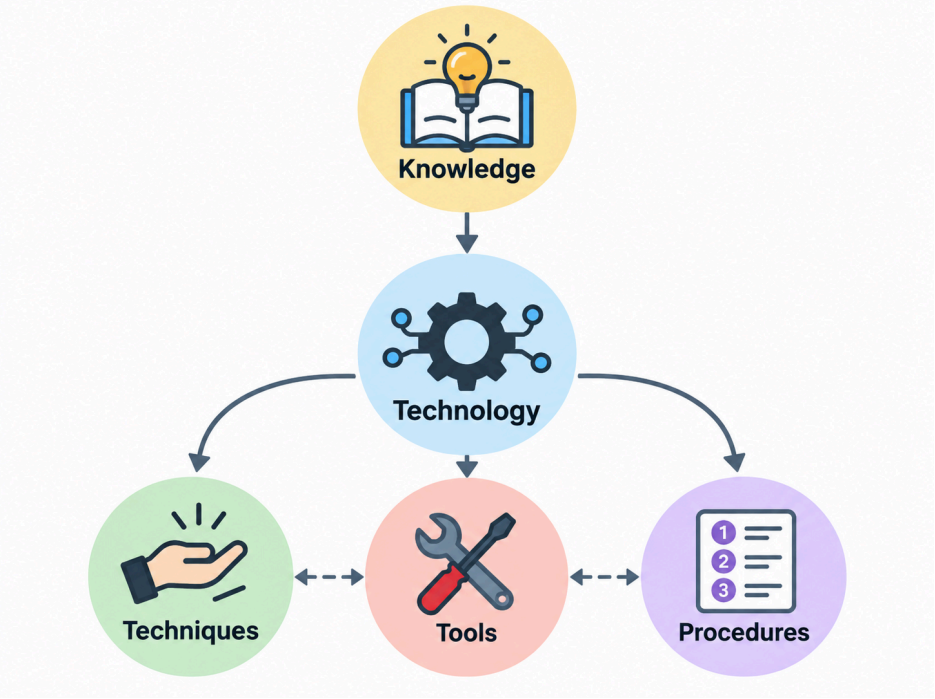
- Techniques are operational ways of seeking to achieve a particular effect or result.
- Procedures are organised sequences of operations through which techniques and tools are coordinated to achieve a result.
- Tools are artefacts that implement, enable, facilitate or automate techniques and procedures.

Example
Adjusting exposure or using particular lighting are techniques.
The camera, lens and image development software are tools.
The sequence through which the set is prepared, the shot taken, images selected and post-production carried out constitutes a procedure.

Techniques, tools and procedures, however, depend on something more fundamental: knowledge.

Knowing the behaviour of light, the properties of a material or how an algorithm works allows us to understand which effects are possible, which techniques can produce them and which tools can be developed or used.

- Knowledge allows us to understand and develop operational possibilities.
- Technology allows us to act on those possibilities through techniques, tools and procedures.



Technology therefore helps define how we can achieve a particular effect.

- A new technique can make possible a form that could not previously be produced.
- A new tool can automate operations that used to take a long time.
- A new procedure can achieve the same result with fewer resources or greater precision.

Technology's characteristic question therefore becomes: how can we do it?
But knowing how to achieve an effect does not yet mean knowing what is worth designing.

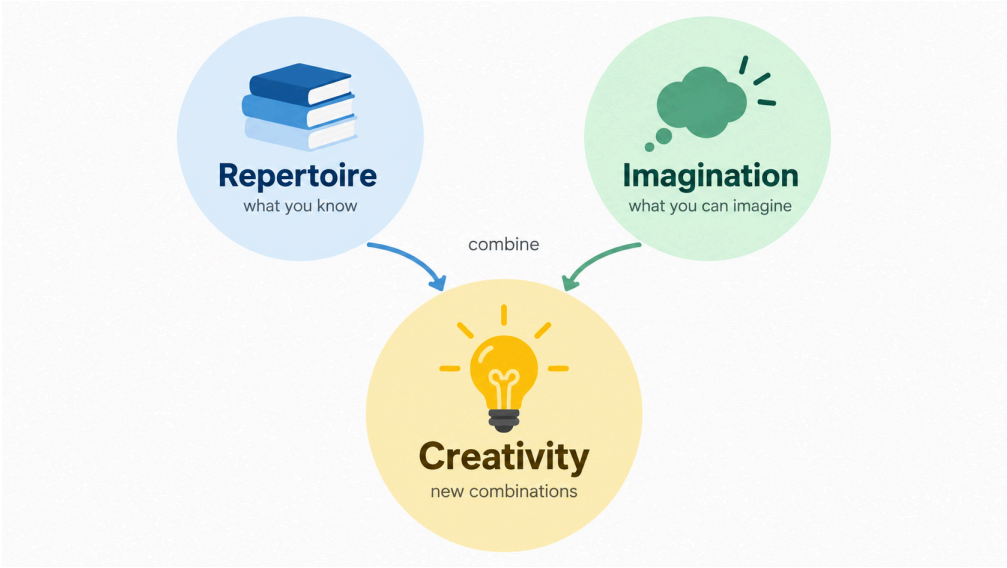
Creativity
To generate ideas, we also need another kind of resource: the repertoire.

The repertoire is the set of experiences, references, examples, forms, solutions, languages and artefacts the designer can recall and relate during the project.
The repertoire constitutes a kind of memory of possibilities already encountered.

Designers can expand it by observing artefacts, studying other fields, analysing projects, experimenting, building prototypes, encountering different cultures and languages or simply accumulating experiences.
The broader the repertoire, the more elements among which we can recognise relationships.
But a large repertoire is not enough.
We need the ability to use those elements to represent combinations that do not yet exist.
This ability concerns imagination.

Imagination is the ability to mentally represent situations, relationships and configurations that are not directly present.
When imagination and repertoire work together, new relationships can be built between already known elements (cf. Munari, 1977).

In the model adopted in this text, we can therefore describe **creativity** as follows: creativity is the ability to use imagination to reorganise the elements of one's repertoire, generating ideas that are new and appropriate to the project's purposes.



Therefore:
- The repertoire supplies the elements.

- Imagination allows possible combinations to be represented.
- Creativity uses these possibilities to generate ideas relevant to the design.

This is why creativity is not simply free fantasy.
In design, a configuration is not creative just because it is unusual. It must also be appropriate to what the project is seeking (Runco & Jaeger, 2012).

An idea may be new because it introduces a relationship, configuration or application that is not obvious in context. This does not mean it must be something nobody has ever imagined before.

Many ideas arise through transfer.
- A solution developed in architecture can be reinterpreted in product design.
- A principle used in video games can be applied to an educational system.
- A structure observed in nature can suggest a construction configuration.

Creativity often consists precisely in seeing a possible relationship that has not previously been used in that way.
Expanding the repertoire therefore increases creative possibilities.

Idea
Creativity and technology are not the same, and neither alone is enough to develop an idea and make it practically feasible.
- Creativity allows us to imagine what could be done.
- Technology allows us to understand how it could be made possible.

We can therefore represent their meeting as follows:
CREATIVITY + TECHNOLOGY → IDEA

The idea connects an imagined possibility with means through which that possibility could take concrete form.

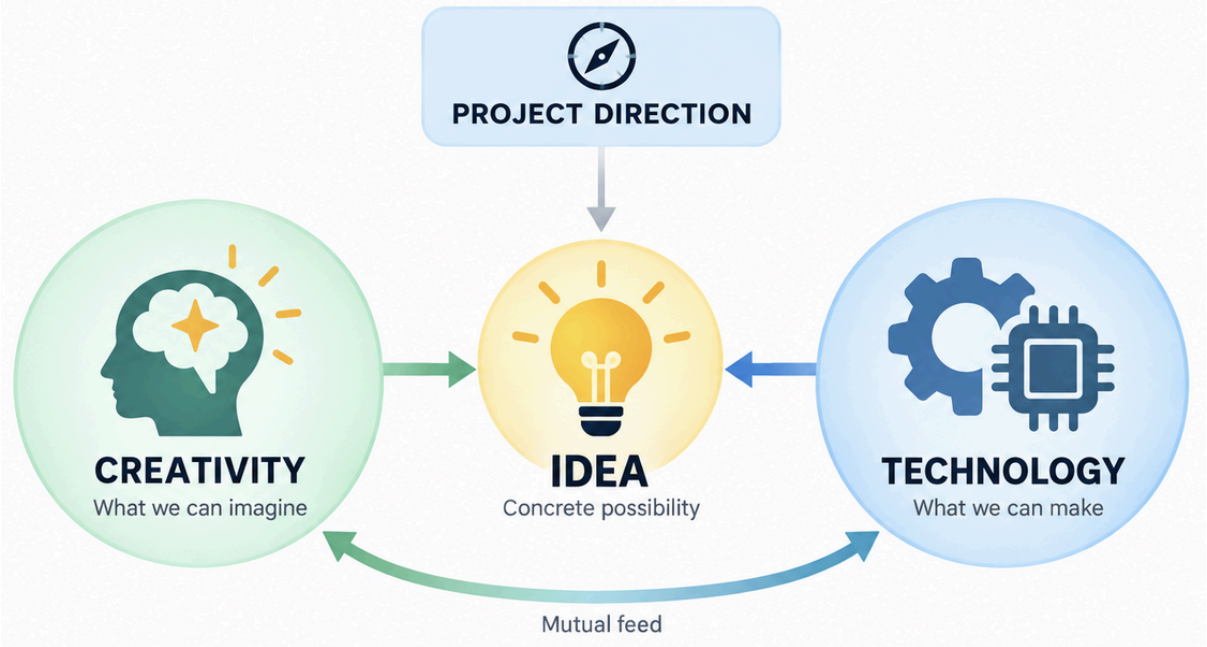
This relationship is dynamic.
- Sometimes a new technology suggests possibilities that could not previously be imagined concretely.
- At other times, a creative idea requires technologies that have yet to be developed or adapted.

Technology and creativity can therefore feed each other.
Think, for example, of listening to music on the move.
The aspiration can exist independently of the available technology.
But different technologies enable different configurations: portable players, digital storage, streaming, wireless earphones or systems integrated into clothing.

At the same time, the existence of a new technology does not automatically determine what should be designed with it.
A sensor, new material or artificial intelligence system may be technically available without it being clear what design use makes sense for it.

This is why:

- Technology expands what we can do.
- Creativity expands what we can conceive of doing.
- The idea arises from the encounter between these two possibilities in relation to the project's direction.



An idea is not a mysterious flash appearing from nowhere. It arises from the encounter between what the project seeks, the possibilities we know how to make technically available, and those we can imagine through our repertoire.

Becoming more creative designers therefore means expanding our repertoire and training our imagination. Becoming more capable designers also means expanding our knowledge and understanding the technologies through which ideas can become concrete configurations.

Design configuration
Having an idea means having identified a possible configuration to explore.
It does not yet mean having a developed design.

Imagine designing a wayfinding system for a large building.
The idea might be:
Use continuous lines on the floor to guide people along different routes.

This is still only an initial representation of the possible configuration.
We must verify, for example:

- Whether the lines are sufficiently visible.
- Whether the routes can be distinguished.
- Whether the system remains understandable when several lines intersect.
- Whether it also works for people with different perceptual abilities.

- Whether it remains legible under stress.
- Whether the available materials allow it to be made.
- Whether costs, maintenance and technical constraints are compatible with the project.

The idea is therefore progressively refined, modified, prototyped and compared with the project's criteria and synthetic experience (ISO, 2019; Norman, 2013).
It may be confirmed, radically transformed or abandoned.

A design configuration is therefore not simply an implemented idea: it is an idea developed, refined and tested against the project's criteria.
We can therefore distinguish:

- Idea → initial representation of a possible configuration.
- Development → process through which the idea is refined, tested and modified.
- Design configuration → developed form emerging from this process.

In corrective mode, the design configuration may constitute a solution to the adopted problem.
In generative mode, it may constitute a proposal through which a possibility becomes concrete enough to be experienced, understood and evaluated.

Testing the model

We have built a theoretical framework distinguishing orientation, design direction, configuration and evaluation, using synthetic experience to represent what could happen to recipients.

Now let us apply it to three concrete artefacts: a remote control, a chair and software.
In these examples, we will begin with a situation where the artefact type has already been chosen. Part of the design direction is therefore already defined. We will focus mainly on one question:
How can we configure the artefact starting from what could happen to recipients and the outcomes we want to encourage?

Notice that a remote control, a chair and software seem very different artefacts.
Yet once we have established what we are designing, the design reasoning follows a similar structure.

- For the remote control, we have particular electronic technologies available, but must understand how to configure them so the person can easily recognise and perform the necessary actions.
- For the chair, we have materials, construction techniques and many possible configurations, but must establish which suit the activities, recipients and context.
- For software, we have particular computational capabilities, but must organise them so people can understand them, use them and control their effects.

In all three cases, the artefact type has already been chosen.
Part of the design direction is therefore already defined.

The work mainly consists of representing what could happen to recipients, identifying the outcomes we want to encourage and translating them into the artefact's configuration.

The remote control
Technically, a remote control contains an electronic system capable of sending commands to a television.
Pressing a button may mean:

- Switch on.
- Switch off.
- Increase volume.
- Change channel.

Making all this possible requires specific knowledge and technologies: circuits, power supply, signal transmission and communication protocols.

But a person does not use a circuit directly.
They use an artefact with buttons, shapes, symbols and feedback.
The buttons therefore provide a point of contact between the device's technical structure and the person's actions.
They are part of the interface.

At this point, questions emerge that circuit electronics alone cannot answer:

- Which commands must be immediately accessible?
- Which can be less prominent?
- How large should the buttons be?
- How far apart should they be?
- How can we distinguish them without looking?
- How should the casing be configured so it can be gripped easily?
- What feedback should confirm that a command has been received?

These questions require consideration of the recipient, their activities and the context (Norman, 2013).
We can represent a possible situation:
The person watches television → wants to adjust the volume → looks for the control without diverting too much attention → recognises it by position, shape or raised features → presses the button → perceives the change.

This representation constitutes a simple synthetic experience.
Within it, we can identify a desired outcome: the person can quickly identify and execute the most frequent commands, even in low light and without constantly looking at the remote control.

From this outcome, we can derive criteria to guide decisions about button size, position, shape and spacing, raised features, symbols, weight and grip.

These properties are not chosen in the abstract.
They are configured in relation to what we want to happen to the recipient.

It would be wrong, however, to conclude: “The engineer designs the circuit and the designer handles everything else.”
In a real project, areas of expertise overlap and collaborate.
Even apparently technical requirements can be directly related to recipients:

- Battery life.
- Signal range.
- Drop resistance.
- Weight.
- Cost.
- Reliability.

Likewise, the designer must understand technical constraints well enough to avoid imagining configurations that are impossible or incompatible with the system.
Disciplines may therefore focus on different aspects of the same artefact.

- Some criteria are formulated mainly in terms of technical performance.
- Others are formulated directly in relation to what must happen to the recipient.

In a real project, these levels must continually be related.

- Technology helps establish what we can make.
- Design also establishes how those possibilities should be configured in relation to recipients and the purposes pursued.

The chair
Now imagine we must design a chair.
We might be tempted to start immediately with the object's characteristics:

- What shape should it have?
- Which material should we use?
- How high should it be?
- How far should the backrest recline?
- How soft should it be?

These are all important questions.
But first we must ask another question: what do we want to happen to the person when they use this chair?

The answers can differ greatly depending on context.

Think of an office chair.
A person may need to use it for many hours while working.
A possible desired outcome might be: the person can perform a prolonged sedentary activity while keeping fatigue and discomfort low and changing posture when necessary.

From this outcome, we can derive criteria and decisions concerning:

- Lumbar support.
- Adjustments.
- Seat height.
- Depth.
- Materials.

- Mobility.
- The ability to change position.

In this case, a good chair may even become unobtrusive during use: it does not constantly draw attention to itself because it allows the person to concentrate on the activity.

Think of a living-room chair.
Let us change context.
Now the person wants to relax, read, watch a film or doze.
The desired outcome changes.
We might want to encourage: a relaxed posture that can be maintained during rest and leisure activities.
Consequently, decisions may also change:

- A deeper seat.
- Greater recline.
- Softer materials.
- Head support.
- Arm position.

A characteristic very effective in an office chair may therefore be unsuitable for a living-room armchair.

Think of a waiting-room chair.
Let us change context again.
A waiting room has different needs.
People must be able to sit down easily, get up without difficulty, wait for a while and possibly give up their seat to others.
A very deep, reclined seat may therefore be inappropriate.
This does not mean the chair should be intentionally uncomfortable.
We must consider simultaneously:

- Comfort.
- Expected waiting time.
- Accessibility.
- Ease of sitting down and standing up.
- Cleaning.
- Available space.
- The diversity of people who will use the seat.

There may therefore be multiple criteria, and some may conflict.
There is no good chair in the abstract.
This example demonstrates a fundamental principle:
There is no “good chair” independent of recipients, purposes, activities and context.

The same configuration may be highly appropriate in one situation and inappropriate in another.
This is why design does not begin with centimetres.
It begins with questions such as:

- Who will use the chair?

- For what activity?
- For how long?
- In what context?
- What do we want to encourage in their experience?

Only then can we turn these answers into more concrete criteria and make decisions about shape, materials and dimensions.
Naturally, asking the right questions does not automatically guarantee a good design.
Ideation, development, trial, error, verification and revision remain.
But without a criterion, it is difficult even to establish whether a choice is working.

There is another point to observe.
The experience of the chair does not necessarily begin when the person sits down.
It begins when they see it.
A person may look at a chair and form the expectation “It looks comfortable” or “It looks rigid”.
This is part of anticipated experience.
If a chair looks very uncomfortable despite actually being comfortable, that perception may discourage people from trying it.
If, instead, it looks extremely comfortable but the experience of use contradicts the expectation, a discrepancy arises between anticipated and lived experience.
This relationship too can become a subject of design.

The artefact's configuration communicates something about what is likely to happen during use.

Software
Finally, consider a photo-editing application.
Imagine it is technically extremely advanced: sophisticated algorithms, very fast processing and tools no competitor has.
Now imagine, at the same time, that people find it very difficult to use.
- The most important functions are hidden.
- Common operations require many steps.

The user does not understand the program's current state.
Errors are difficult to correct.
Some functions are rarely used simply because nobody can find them.

In this case, we can simultaneously have:
- High technical capability
- A problematic user experience.

The two are not incompatible.
Those who build the system know it too well
A frequent cause of this problem is that those building a technology know its structure so well that they struggle to represent the situation of someone unfamiliar with it.

The developer may know:

- The program's internal structure.
- The technical names of its functions.
- How the algorithms are organised.
- The dependencies between different components.

To them, this structure may seem natural.
The user, however, need not know any of this.
They may simply have an objective, for example:

- “I want to brighten this photograph”
- “I want to remove this element.”

The user therefore has activities, objectives and their own mental model of the system, which may differ greatly from its technical architecture.
Designing the interface means building an interaction structure understandable in relation to these objectives, without forcing the user to know the software's internal workings.

The work does not simply consist of making the application more beautiful.
It may include decisions such as:

- Translate technical functions into understandable commands.
- Use terms consistent with users' language.
- Organise commands around the activities actually performed.
- Make the most frequent operations easily accessible.
- Reduce unnecessary steps.
- Make the system's state visible.
- Allow actions to be easily undone or corrected.
- Make available actions discoverable.

A technically present function that no user can find has very limited value from an experiential perspective.
Design must therefore connect the system's capabilities with the possibilities perceived by the user.

Software makes the relationship between technology and design particularly clear.
Algorithms establish some of the operations the program can perform.
Without those technical capabilities, certain experiences would not even be possible.
But a function being technically available does not automatically establish:

- How it should be presented.
- When it should become visible.
- What it should be called.
- How it should be activated.
- What feedback it should produce.
- How it should behave in the event of an error.

Technology helps define the space of what is technically possible.
Design selects and configures these possibilities in relation to the design direction, synthetic experience and outcomes it aims to encourage.

Supplementary material

Exercises

Think back to a recent experience
Think back to a recent experience you lived through in full: a journey, a visit, a dinner, an administrative procedure.

- Write what you remember in five lines.
- Now try to reconstruct how long each part you remembered lasted. How much of the total duration does what you wrote cover?
- What was the peak — the most intense moment, positive or negative? And how did it end?
- If you had to do it again, would you? What are you basing your answer on: what it was like to live through, or what you remember of it?

Evaluating the problem in a designed artefact
Choose a design solution you find particularly successful — an object, an interface or a service.

- What was the problem?
- Try to reconstruct the idea: what intuition lies at the heart of that solution? Can you express it in one sentence?
- What knowledge and techniques did its designer need to arrive at it?
- In what sense is the idea new? And in what sense is it appropriate?
- Try to imagine a different idea for the same problem. What would you need to know how to do to implement it?

Reassessing a problem
Choose an artefact, application or service you know well.

- What need does it seek to meet?
- What is the current situation in relation to that need?
- What obstacles make meeting it difficult?
- How would you formulate the problem in one sentence?
- Turn the problem into a design question.
- Reframe the problem in at least two different ways.
- What new solutions become visible after each reframing?
- Which aspects of recipients' experience do the different solutions aim to improve?

Re-design
Choose an artefact you use every day.

First, work in corrective mode:

- Identify a need the artefact addresses.
- Identify at least one problem in the current experience.
- Reframe the problem in at least two different ways.
- Imagine some possible solutions.

Now change the logic.
Work in generative mode:

- Forget the current artefact's problems for a moment.

- Ask yourselves: what would we like to be possible in this area?
- Formulate an aspiration.
- Generate at least three different possibilities.
- Choose one.
- Imagine which artefact, prototype or scenario could make it concrete enough for another person to understand and evaluate.

The transition from the first question to the second is the fundamental transition between the two modes:
Not only “what must we correct?”, but also “what can we make possible?”

From property to aesthetic quality
Consider an automatic coffee machine in an office with these characteristics:
- Dark metal casing.
- A very bright display.
- Stiff, short-travel buttons.
- About four seconds pass after selection before it starts.
- It produces a fairly loud mechanical noise during preparation.
- The drink is dispensed slowly and steadily.
- A small animation appears at the end, accompanied by a sound signal.

Analyse the experience without merely deciding whether the machine is “beautiful” or “ugly”.
- Distinguish the artefact's properties from possible perceived aesthetic qualities.
- For at least four properties, formulate several possible aesthetic qualities. For example, different people might interpret the same characteristic differently.
- Identify possible qualities at the following levels:
    - Visceral.
    - Behavioural.
    - Reflective.
- Build a possible description of the experience's overall aesthetic character using 4–6 adjectives.
- Identify which properties of the machine contribute most to that character.
- Distinguish aesthetic and instrumental quality: can a characteristic contribute to both?
- Identify at least one element that might be aesthetically unpleasant yet functional.
- Explain why an unpleasant experience is not necessarily devoid of aesthetic qualities.
- In the case analysed, distinguish:
    - Aesthetics.
    - Pleasantness.
    - Beauty.
    - Instrumental quality.
- Finally, formulate two design hypotheses of the form: configuration → possible perceived aesthetic quality.

Then explain how you could verify whether those qualities actually emerge in people's experience.

The exercise mainly aims to avoid the direct leap “physical property = aesthetic quality”: the designer controls the configuration, while aesthetic quality emerges in the relationship with the subject and must be verified.

Designing an appropriate aesthetic character
You must design a portable lamp for evening reading, usable on a bedside table, on the sofa or while travelling.

Before thinking about the object's concrete form, establish what experience you want to encourage.

- Define at least four aesthetic qualities you would like to emerge during the experience. Avoid generic terms such as “beautiful”.
- Explain why these qualities are consistent with the project's purpose and context.
- For each quality, hypothesise some configurable properties of the artefact:
    - Shape.
    - Material.
    - Weight.
    - Light.
    - Colour temperature.
    - Switch-on mechanism.
    - Adjustment.
    - Movement.
    - Feedback.
- Analyse the proposal through the three levels:
    - Visceral: how should it be perceived immediately?
    - Behavioural: how should it be experienced while switching on, adjusting, moving and using it?
    - Reflective: what meanings or values might it take on for the user?
- Identify at least one quality that might emerge at several levels simultaneously.
- Distinguish which decisions mainly concern instrumental quality and which concern aesthetic character.
- Identify at least one possible conflict between instrumental quality and aesthetics.
- Imagine two very different aesthetic directions for the same lamp, both compatible with its function. For example, one might feel intimate and discreet, the other technical and precise.
- Explain why both could be valid design choices.
- Define what aesthetic appropriateness would mean in this case.
- Design a small user test to verify whether the desired aesthetic character actually emerges.
- If users described the lamp with very different qualities from those anticipated, indicate which aspects of the configuration you would reconsider.

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Further reading

- John Dewey, Art as Experience, Minton, Balch & Company, 1934 — A foundational philosophical investigation of experience and its relationship with perception, action, emotion and meaning. Dewey distinguishes between the continuous flow of everyday life and experiences that acquire unity and significance through their development over time. The book is particularly relevant to the handout's distinction between experience as an unfolding process and experience as an episode that can subsequently be interpreted and evaluated. It also provides a theoretical foundation for understanding aesthetics as a qualitative dimension of experience rather than merely a property of beautiful objects.
- Donald A. Norman, *Emotional Design: Why We Love (or Hate) Everyday Things*, Basic Books, 2004 — A foundational investigation of the relationships between emotion, cognition, behaviour and the design of everyday artefacts. Norman introduces three levels of processing — visceral, behavioural and reflective — through which people respond to products and develop relationships with them. The book is particularly relevant to the handout's analysis of aesthetic experience, especially its distinction between how an artefact appears, how it behaves during interaction and what meanings it acquires for the person experiencing it. It also provides the original theoretical framework from which the handout develops its own interpretation of aesthetic qualities across these three levels, while clarifying why Norman's model should not be understood as a classification of aesthetics alone.
- Daniel Kahneman, Thinking, Fast and Slow, Farrar, Straus and Giroux, 2011 — An extensive exploration of human judgement, cognitive biases, decision-making and

the relationship between immediate experience and retrospective evaluation. Kahneman examines the distinction between the experiencing self and the remembering self, showing how evaluations of past events can differ from the moment-by-moment experience of living through them. The book is particularly relevant to the handout's discussion of lived, remembered and recounted experience, especially the peak-end rule and duration neglect. It helps explain why designers must distinguish what actually happens during an experience from how that experience is subsequently remembered and judged.

- Patrick W. Jordan, Designing Pleasurable Products: An Introduction to the New Human Factors, Taylor & Francis, 2000 — An examination of product design that extends traditional concerns with usability and functionality to include pleasure, emotion and personal meaning. Jordan proposes a framework for understanding different forms of pleasure associated with products, including physical, social, psychological and ideological dimensions. The book is particularly relevant to the handout's distinction between instrumental, aesthetic and affective qualities of experience. It provides an additional perspective on why an artefact's success cannot be evaluated exclusively through its technical performance or the efficiency with which it enables an activity.
- Richard Shusterman, Pragmatist Aesthetics: Living Beauty, Rethinking Art, Blackwell, 1992 — A philosophical investigation of aesthetics grounded in embodied experience, perception and everyday life. Drawing on pragmatist philosophy, Shusterman challenges approaches that restrict aesthetics to artistic objects or detached judgements of beauty. The book is particularly relevant to the handout's broader conception of aesthetics as the qualitative way in which something appears, behaves and acquires meaning in experience. It offers a complementary perspective on the relationship between sensory perception, bodily engagement, interpretation and aesthetic evaluation.
- Bryan Lawson, How Designers Think: The Design Process Demystified, 4th edition, Architectural Press, 2005 — A systematic investigation of how designers understand problems, develop ideas and make decisions throughout the design process. Drawing on observations, interviews and case studies, Lawson examines the complex relationship between problem analysis and solution generation, showing that designers frequently develop their understanding of a problem while exploring possible solutions. The book is particularly relevant to the handout's distinction between needs, problematic situations, problem formulations and design configurations. It helps explain why the transition from problem to solution is rarely linear and why generating possible solutions can itself contribute to redefining the problem.
- Margaret A. Boden, The Creative Mind: Myths and Mechanisms, 2nd edition, Routledge, 2004 — An interdisciplinary investigation of creativity from the perspectives of cognitive science, philosophy and artificial intelligence. Boden examines how new ideas emerge through the exploration, combination and transformation of existing conceptual structures, challenging the notion that creativity is an inexplicable or purely spontaneous phenomenon. The book is particularly relevant to the handout's discussion of repertoire, imagination and creativity as interconnected resources for generating design ideas. It provides a deeper theoretical foundation for understanding how designers can produce original

configurations by reorganising existing knowledge and exploring possibilities that were not previously apparent.

- Bill Buxton, Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kaufmann, 2007— An extensive exploration of sketching, prototyping and experimentation as essential components of design thinking. Buxton argues that early representations of ideas should be used not merely to communicate predetermined solutions, but to explore alternatives, reveal assumptions and support the progressive development of design concepts. The book is particularly relevant to the handout's distinction between an initial idea, its subsequent development and a validated design configuration. It also helps explain how prototypes can make possible experiences concrete enough to examine and evaluate, particularly when the project explores something that does not yet exist.
- Roberto Verganti, Design-Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean, Harvard Business Press, 2009 — A theoretical and practical investigation of innovation driven by the creation of new meanings rather than exclusively by technological advances or existing user requirements. Verganti examines how designers and organisations can propose new interpretations of products and experiences, introducing possibilities that people may not have previously imagined or requested. The book is particularly relevant to the handout's distinction between corrective and generative modes of design. It provides a complementary framework for understanding how design can begin with an aspiration or vision rather than an identified problem, while also highlighting the relationship between technological opportunities, cultural interpretation and design proposals.
- Elizabeth B.-N. Sanders and Pieter Jan Stappers, Convivial Toolbox: Generative Research for the Front End of Design, BIS Publishers, 2012 — An exploration of generative design research and methods for involving people in the early stages of design. Sanders and Stappers examine how participants can contribute not only by describing existing problems or evaluating proposed solutions, but also by expressing experiences, needs, aspirations and possible futures through creative activities. The book is particularly relevant to the handout's discussion of synthetic experience, problem formulation and generative design. It provides practical and theoretical perspectives on how designers can build representations of people's situations, uncover possibilities that are not immediately apparent and transform research findings into material for developing new design directions.

Editorial notes

In producing these materials, I have used generative artificial intelligence tools to support the writing process, particularly to improve the form of the text, reorganize content, refine wording, and speed up certain editorial tasks.

As I work independently on the production of these materials, I try to automate any activities that can reasonably be automated, so that I can devote more time to research, design, and content development.

However, artificial intelligence does not determine the content of this work: the choice of topics, structure, ideas, interpretations, examples, and teaching approach are developed by me. AI is therefore used primarily as a tool to support production and formal revision, while authorship and responsibility for the design and content remain mine.

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