Data Education

A guide to explaining data concepts to your audience

TTC Labs

Contents

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Data and privacy topics have increasingly been in the spotlight, making these issues top of mind for people all over the world

As data and privacy become leading topics in the global dialogue of digital services, being transparent about how data is used in digital products is increasingly vital to gaining trust with all audiences.

Understandably, people want more transparency and control around their data. However, there is a substantial lack of knowledge among consumers about how data is used by the businesses they interact with every day. The absence of this foundational knowledge makes it difficult to effectively communicate the value of data practices to people in a meaningful way.

The data education challenge is a daunting one, and no single company can solve it alone. Cross-industry collaboration and cooperation are essential to educating people about the often complex ways in which data is used by businesses.

The Trust Transparency and Control Labs has explored issues around notification and consent, transparency for digital services, trustful interactions, dashboards and control types through a series of single-day workshops called Design Jams. In January, we brought together designers, product managers, industry peers and legal experts to develop ideas around data education within digital services.

Initiated and supported by Facebook, and built on collaboration, the initiative has grown to include over a hundred organisations, including major global businesses, startups, civic organisations and academic institutions.

Building on the ideas developed by these experts, we've created a set of frameworks, tools and patterns to help support the work of the wider business and design community in developing potential solutions.

This report summarizes the challenges around data education, and provides some initial approaches and patterns to address those challenges.

The tools we use today to inform people of the options they have about their data and how it's used have not kept pace with technology.

They are neither intuitive nor user-friendly. We're using design thinking to change that.
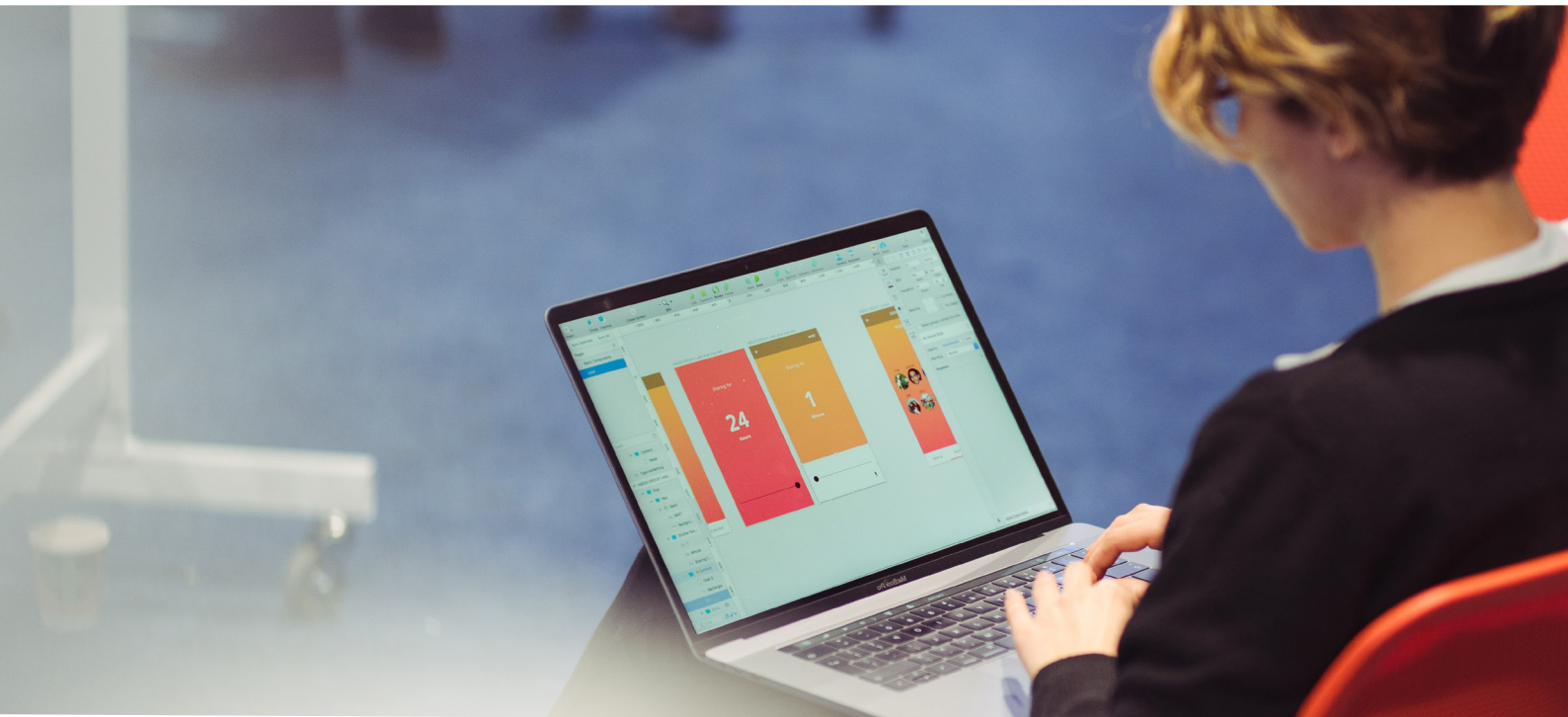
By "design thinking" we mean the methods used by designers to make technology usable and people's lives simpler. The best designs start with an understanding of people. We're bringing together experts from a diverse range of fields to create new approaches to designing experiences that give people control and that empower them to make educated choices online.

We've run Design Jams in Berlin, Brussels, Dublin, Sao Paulo, Hong Kong, Paris, London, Seoul, Singapore and Buenos Aires so far, and that's only the beginning.

When designing products, it's easy to neglect the data education and data protection features of a product, such as privacy statements and data-use reviews. Yet these features greatly impact the perception and experience of trust, transparency and control.

Trust Transparency & Control Labs, a cross-industry effort to create innovative design solutions that give people control of their privacy

Product and design decisions around these topics rarely involve publishers and industry peers at the end of the product chain.

During Design Jams, product makers, policy advisors and data regulators work together to solve real-world design problems. Through hands-on prototyping, they come to understand the realities of designing for transparency, trust and control. They develop concrete solutions that can be implemented in their projects.

We use rapid prototyping techniques to develop design solutions by the end of the Design Jam. The design patterns describe in this report were drawn from the interactive designs that were co-created on the day of the Data Education Design Jam by transdisplinary teams that included advertisers, data brokers and agencies. By turning them into broader patterns we hope to stir the debate amongst the publishers' community.

Defining data

In order to help people make sense of what kind of data is being collected about them, we started by defining types of data. During the Design Jam we categorized data into four different data types: onsite, offsite, offline and inferred data. The types are based on where and how data is collected, and whether the data is provided directly by a user or if it the data is deduced by other methods.

We recognize that there is a lot of nuance within each data type, and that other types of data are not represented here. For the purpose of this Design Jam, we limited our scope of data types in order to have a focussed discussion and brainstorm.
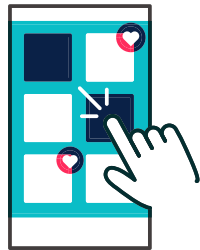
Onsite

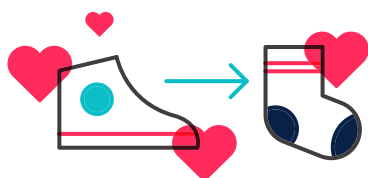User generated content or observed actions occurring on your properties

Offsite

Data collected on another business' site or app

Offline

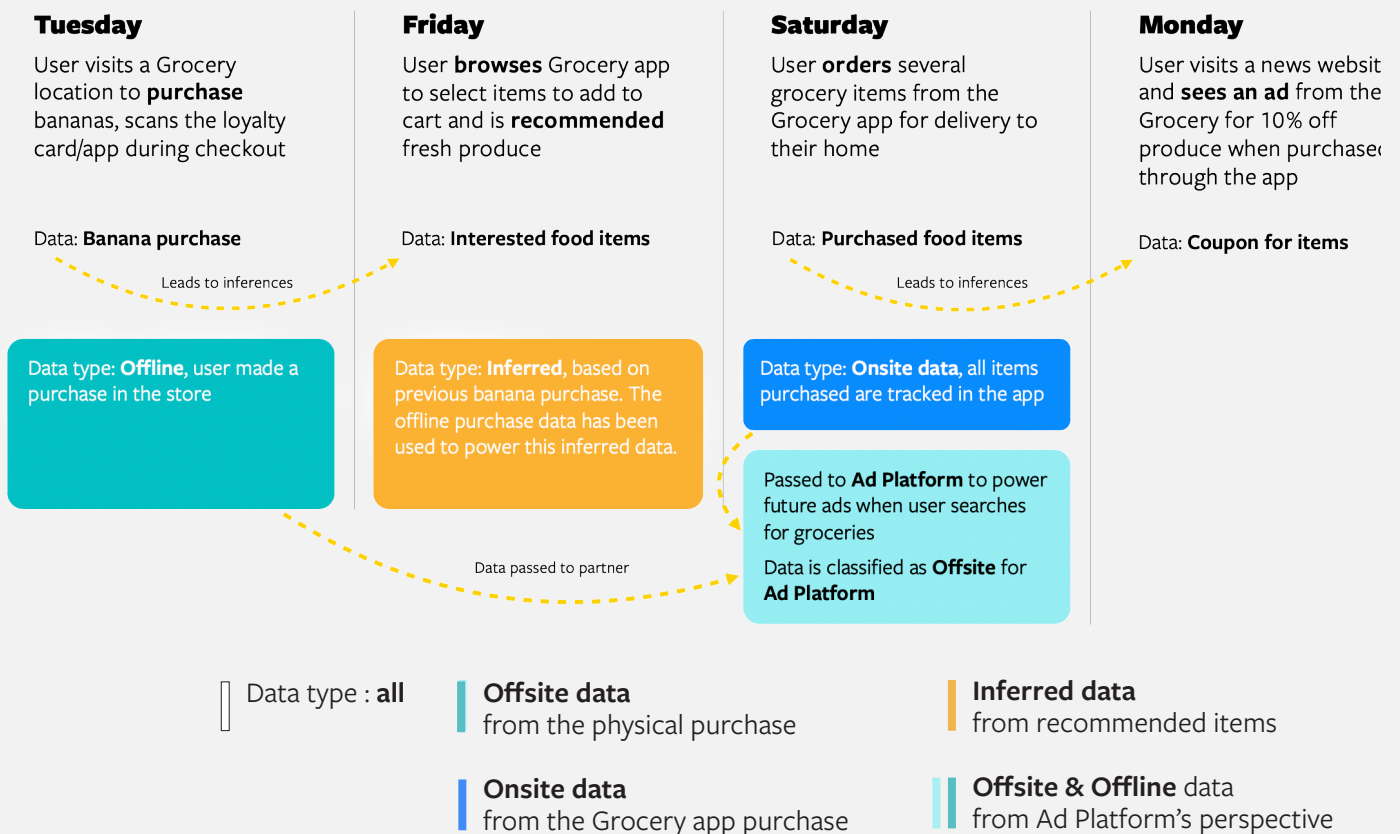Data businesses share about activity in their physical store

Inferred

Information generated based on all other signals

Explaining the relationships between data types

Categorizing data into four broad types is only the first step in educating people about data and data use. We learned in the Design Jam that these data types are highly interrelated, and that it's difficult to explain a single type in isolation. In fact, it's necessary to explain the relationships between all four data types.

Let's take a look at an example, where the simple purchase of a bunch of bananas cycles through all four data types in a common data flow that exists today.

EXAMPLE OF INTERRELATED DATA TYPES

Tuesday
User visits a Grocery location to **purchase** bananas, scans the loyalty card/app during checkout

Data: **Banana purchase**

Leads to inferences

Data type: **Offline**, user made a purchase in the store

Friday
User **browses** Grocery app to select items to add to cart and is **recommended** fresh produce

Data: **Interested food items**

Data type: **Inferred**, based on previous banana purchase. The offline purchase data has been used to power this inferred data.

Saturday
User **orders** several grocery items from the Grocery app for delivery to their home

Data: **Purchased food items**

Leads to inferences

Data type: **Onsite data**, all items purchased are tracked in the app

Passed to **Ad Platform** to power future ads when user searches for groceries

Data is classified as **Offsite** for **Ad Platform**

Monday
User visits a news websit and **sees an ad** from the Grocery for 10% off produce when purchased through the app

Data: **Coupon for items**

Data passed to partner

⌐ Data type : **all**

| **Offsite data** from the physical purchase

Inferred data from recommended items

| **Onsite data** from the Grocery app purchase

Offsite & Offline data from Ad Platform's perspective

In everyday life, data is regularly collected from websites we visit, from offline interactions (e.g. a shop purchase) and from other digital services. In this example, data is collected when a person buys a banana in a physical store. This data is then compared and modeled to infer new information about the person's likely preferences, for example that they might be interested in fresh produce.

In addition, this data might then be passed on to third party sites, such as advertising platforms. This case illustrates that even in a simple interaction such as a in-store banana purchase, a fair amount of data is exchanged in complex ways that might be difficult to understand for most people. Data education must help people "connect the dots" of this ecosystem, even if they don't have to know the details of every interaction.

Here are three approaches that can be used together to educate people about data

A CONTENT STRATEGY FOR DATA EDUCATION

Content strategy is a tool to help to educate people about data by using voice, tone and words with care and intent. We can borrow from a number of content strategy principles to create meaningful experiences: to understand the audience for a product or service; to develop a voice for a product and use the appropriate tone at different points of the product experience; and to create clear content by using familiar terms and language.

B VISUAL STORYTELLING

As we are still building our understanding of data, it can quickly feel too complex to comprehend. Illustrations and visual metaphors can really help to bring abstract concepts to life and get people to engage with the content.

C USER EXPERIENCE DESIGN

User experience (UX) design is the process of creating products and services that provide useful and usable experiences to people.
It is human centred - in that the aim of UX Design is to make technology serve users in an experience that they can understand and enjoy.
User experience design considers the entire user process - from their initial awareness of the product or service - through sign-up and on to the ongoing experience.

A ## CONTENT STRATEGY FOR DATA EDUCATION

We can educate people about data sharing more effectively if we choose voice, tone and words with care and intent

There are a number of principles that can be borrowed from content strategy to create meaningful experiences.

In the context of data education, it is particularly important to **understand the audience** for a product or service; to **develop a voice** for a product and **use the appropriate tone** at different points of the product experience; and to **create clear content** by using familiar terms and language.

KNOWING YOUR AUDIENCE

When creating content for a product or service, knowing who you are "speaking" to is key to developing trust and providing a meaningful experience.

USING VOICE AND TONE

Voice is the personality of a company, product, or service. Voice helps define a company, and provides a framework for addressing the company's audience.

A company or product's voice will always stay the same throughout the experience. But the tone of voice can and should change depending on the context. To choose the right tone to use at a specific point in a product, content creators should consider what information needs to be communicated, and how their audience might feel at that point. The key is to match the tone to that specific situation.

SOME EXAMPLES OF USING THE RIGHT TONE:

Imagine you are a company that produces a popular game app. If a user has unlocked a new level in the game, here are some things to consider:

Context :
user has completed a level

Communication:
inform the user that they have reached the next level

Emotional state of user:
excited, happy, proud

Tone:
celebratory, congratulatory

Suppose you offer to connect your users with other players in their area, but to do so, you need their location information:

Context:
user agrees to be connected with other players in their area

Communication:
you need their permission to access their location information

Emotional state of user:
skeptical, uncomfortable, wants more information

Tone:
informative, reassuring

A CONTENT STRATEGY FOR DATA EDUCATION

CREATING CLEAR CONTENT

A few key strategies to creating content that is clear and understandable:

- Using simple words and phrases to explain difficult concepts or complex information. Break concepts down into small, digestible parts for your audience.

- Avoid using industry jargon when possible. Creating transparent product experiences often means having to describe technical processes to a non-technical audience. Reducing jargon in the interface can help with audience comprehension.

- Consider localization when writing in your primary language. Certain technical words and phrases may have different meanings in different parts of the world than in your product's primary language.

SOME EXAMPLES OF CLEAR CONTENT:

Let's look at how we might talk about the four data types in the context of a hypothetical fashion retailer called 'Garms.

ONSITE DATA

Your activity
on Garms

OFFSITE DATA

Your activity that other websites or apps have shared with Garms

OFFLINE DATA

Your activity at businesses and stores shared with Garms through loyalty programs, email lists, and other information

INFERRED DATA

Patterns that Garms has noticed about you as you use the app over time.
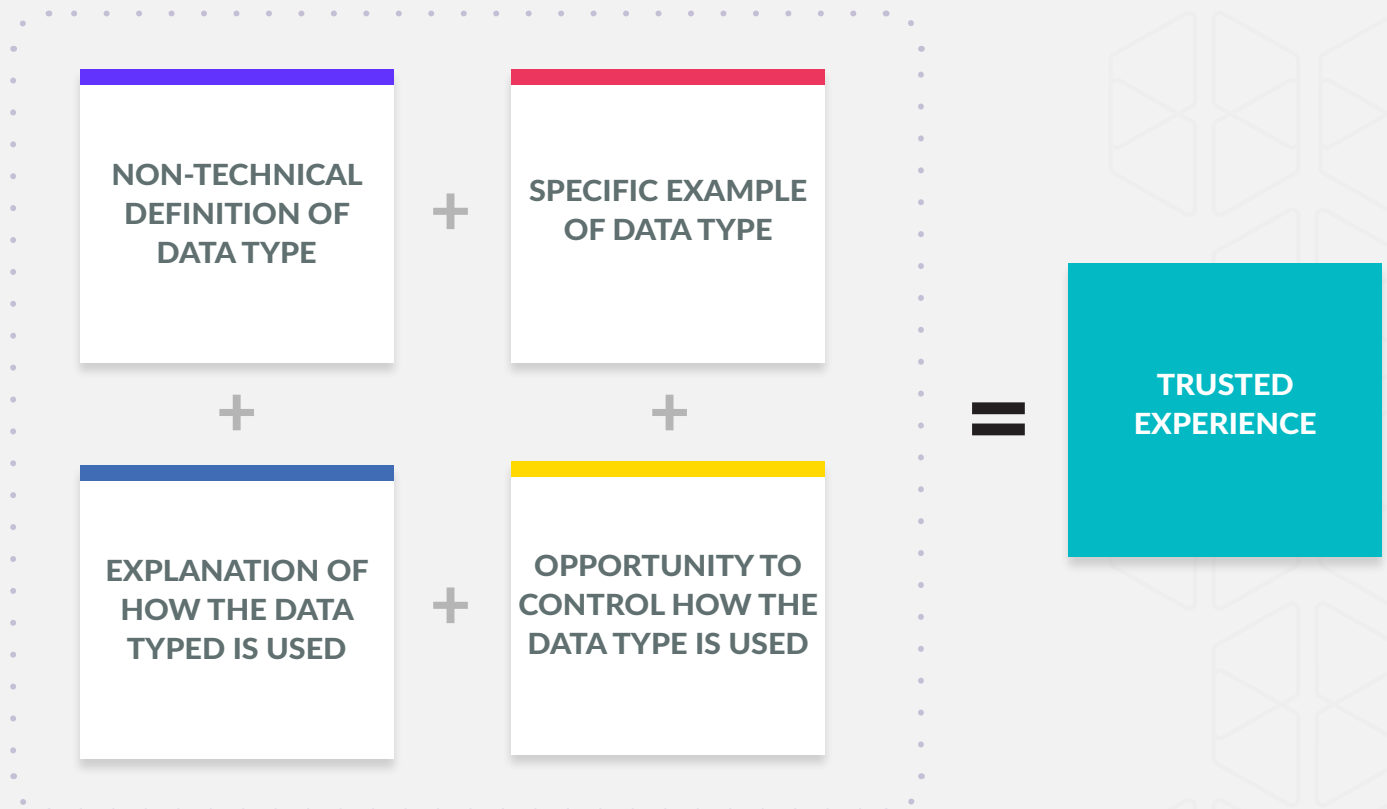
A **CONTENT STRATEGY FOR DATA EDUCATION**

KEY TAKEAWAYS

We have found the following strategies particularly effective in the context of data education:

- Creating a **non-technical definition, or explanation, of each data type** makes it easier to incorporate information about the data type and its use at appropriate points in the user journey

- In-context explanations/education coupled with **specific examples of how a person's data is used** within an app or service works better to develop trust and yield better comprehension

- In-context explanations/education go hand-in-hand with the **ability to control.** Providing education about how a person's data is not as meaningful if control of that use is not provided

Overall, we saw that using a combination of strategies helped to create a meaningful experience that builds trust:

NON-TECHNICAL DEFINITION OF DATA TYPE

+

SPECIFIC EXAMPLE OF DATA TYPE

+

+

EXPLANATION OF HOW THE DATA TYPED IS USED

+

OPPORTUNITY TO CONTROL HOW THE DATA TYPE IS USED

=

TRUSTED EXPERIENCE

B **VISUAL STORYTELLING**

Illustrations and visual metaphors can bring abstract concepts to life and allow people to engage with the content

When you are dealing with complex concepts like data sharing, illustration can serve as an entry point for your audience. Illustration has an unparalleled ability to make content more relatable and more interesting.
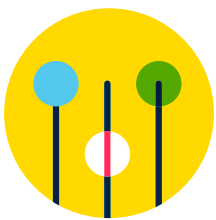
If we use illustration to its full potential, we not only help our audience understand the content, but we help shape how they feel about it. This can be the difference between a positive and negative reaction to your message.

Why illustration?

CLARITY
Illustration helps the user achieve a deeper, more meaningful understanding of written content.

FLEXIBILITY
Using one visual language, illustration can speak in a variety of tones and at many different sizes.

PERSONALITY
Illustration makes your message more personal and distinct, helping your audience to more easily connect with it.

B **VISUAL STORYTELLING**

Principle 1
Illustration is a tool for user experience

**1.** **Bring a new perspective to existing content.**

Illustration should say something the copy isn't saying. It should be support by solid content strategy.

2. **Add depth, not decoration.**

Illustration is a tool for user experience. Illustration that is merely decorative can get in the way of comprehension.

3. **Take context into consideration.**

Illustration is a flexible tool, that can live in multiple environments. The context that illustration will live in is important. An idea for a story may be too complex to fit within the allotted space. Or perhaps there are many other illustrations on the surface that use a totally different narrative. Fitting within that narrative will make for a more consistent experience.
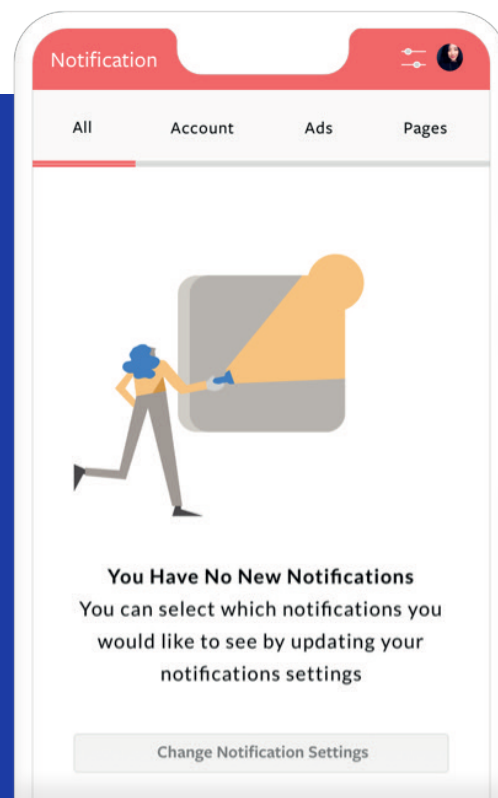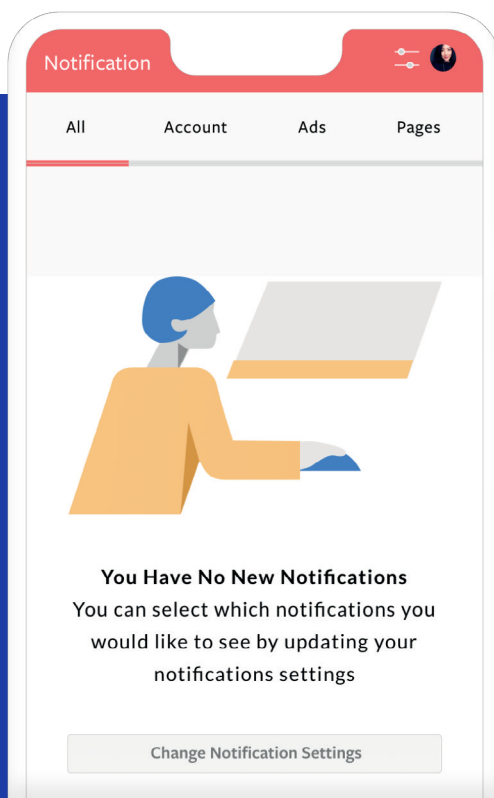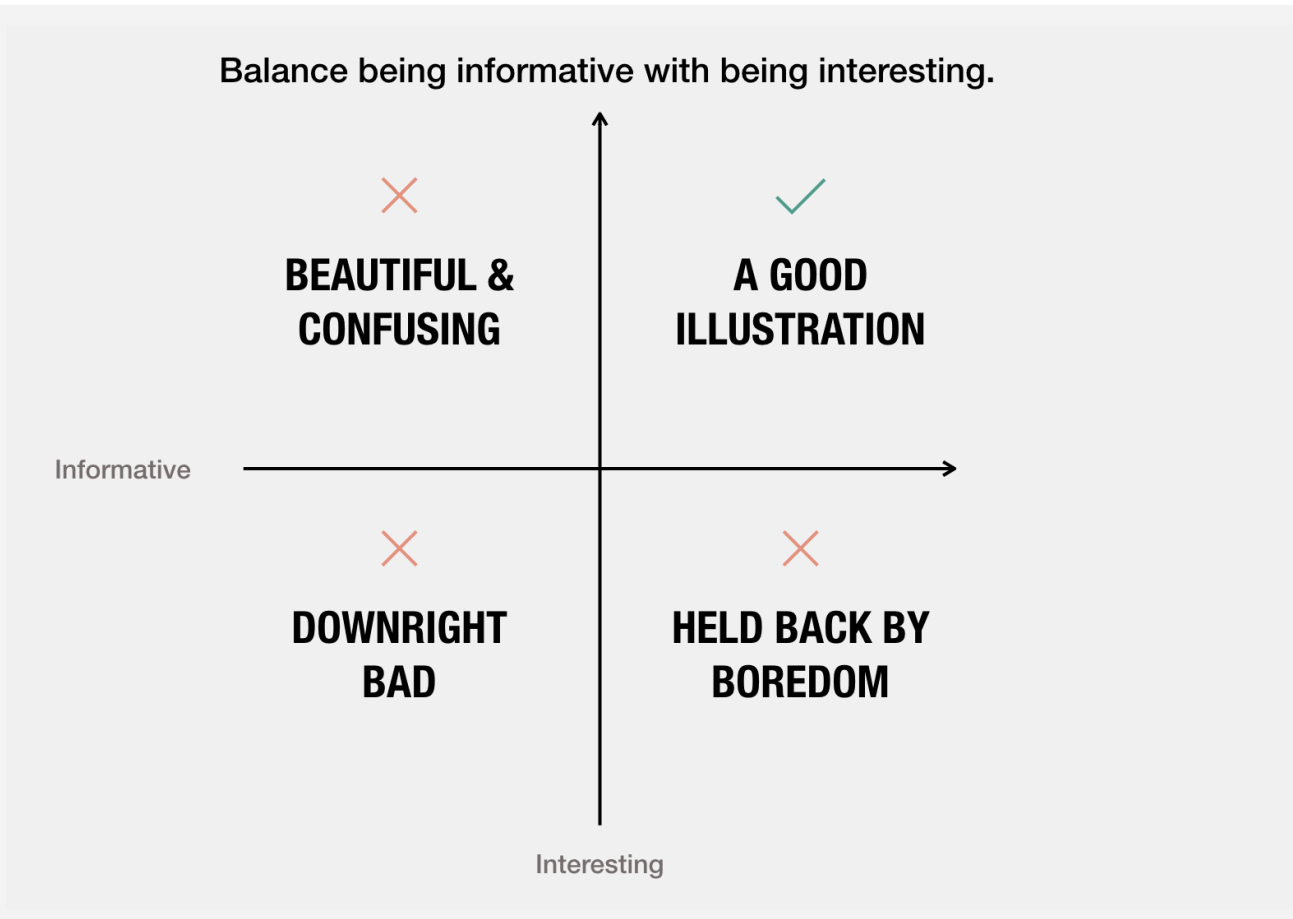

For example:

A publisher's platform is using illustration to help people manage their notification settings better.

These moments are subtle, but they highlight why using something like illustration can convey a message better then a pretty picture. In moments where critical information is explained, there is no second chance for this information to land. Designing these details from the start is therefore crucial.

B **VISUAL STORYTELLING**

Principle 2
Choosing meaning over detail

Balance being informative with being interesting.

×
**BEAUTIFUL &
CONFUSING**

✓
**A GOOD
ILLUSTRATION**

Informative

×
**DOWNRIGHT
BAD**

×
**HELD BACK BY
BOREDOM**

Interesting

1. **Choose meaning over detail.**

Just enough is more. Don't rely on illustration to communicate every detail. Often a simpler illustration communicates more quickly and clearly.

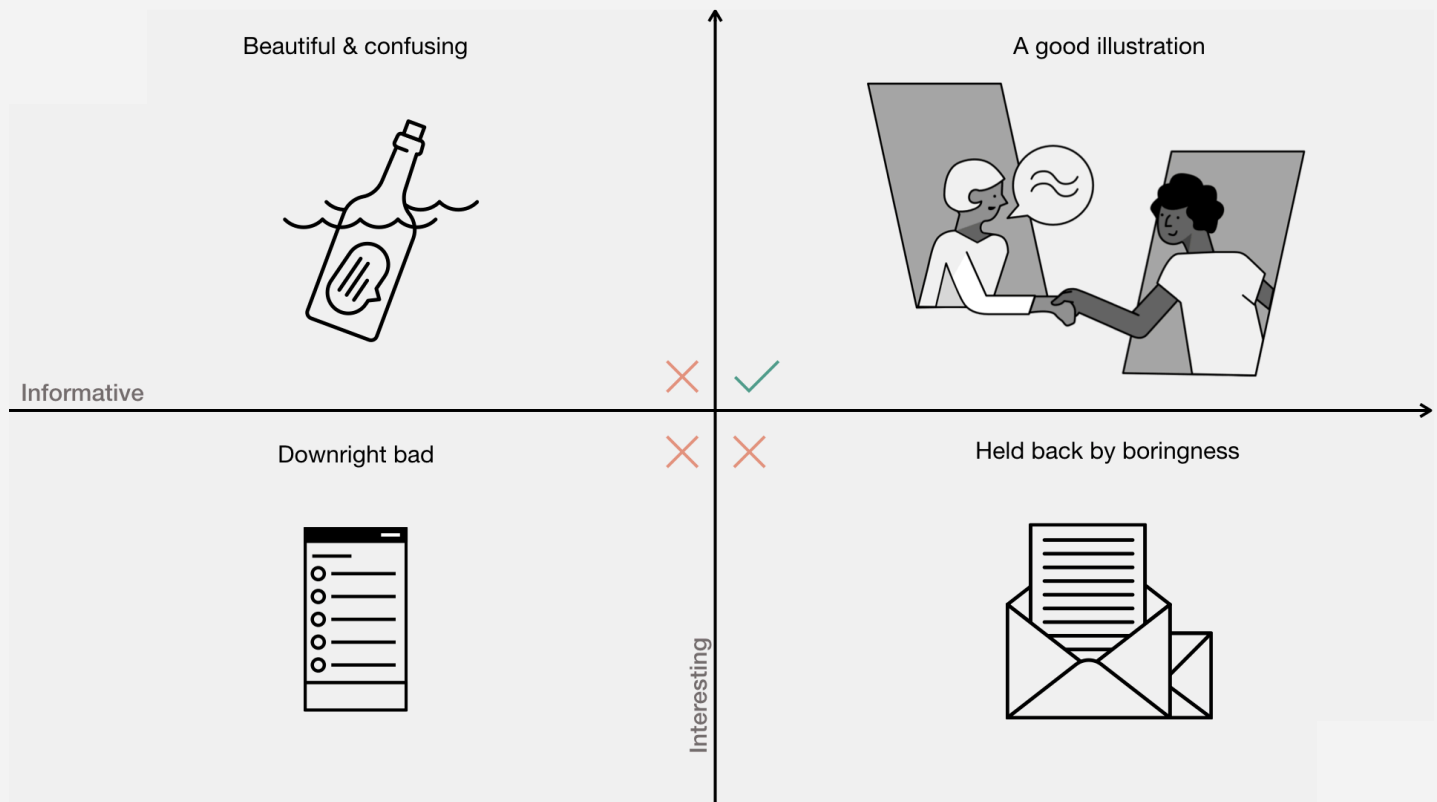**2.** **Use metaphor to turn complex concepts into relatable idea.**

A good metaphor takes something that requires a lot of explanation and makes it easy to understand.

3. **Balance being informative with being interesting.**

Make sure the metaphors you choose are equally simple, relevant, and engaging .

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B **VISUAL STORYTELLING**

Principle 2
Choosing meaning over detail

Beautiful & confusing

A good illustration

Informative

Downright bad

Held back by boringness

Interesting

For example:

To create a meaningful illustration its important to talk to stakeholders and find out what message beyond the obvious "inbox" is really important. In this case it was customer connections. Focusing on the human factor allows the illustration to get to the heart of the communication rather than filling a space.

A message in a bottle is a visual most of us are familiar with, it's sort of fun and mysterious, but it has so many other connotations beyond inbox. It's sort of the "anti inbox" in a lot of ways. So it's beautiful but confusing.

A vague user interface of the actual surface is not going to be informative or interesting.

A customer's inbox illustration to indicate it's a place to communicate with other sellers.

A piece of mail is something that is pretty quickly related to an inbox but it's so overused that it becomes uninteresting which is bad for the brand and also less communicative.

B # VISUAL STORYTELLING

Principle 3
Every business has a story

1. Business isn't boring!

It's every business' responsibilty to explain critical and complex information to its audiences. Challenge yourself to make that message engaging.

2. Humans are a lead

It's every business responsibilty to explain critical and complex information to its audiences. Challenge yourself to make that message engaging.

For example:

A retailer is using an illustration to help people understand that their online data (e.g. card details) can be accessed in physical stores as well.

Despite its simplicity, the design of the character is human and dynamic. The movement of the figure highlights the fact that saving this data will allow to save time. Illustration details are used to put the value proposition forward.

C **USER EXPERIENCE DESIGN**

User experience (UX) design is the process of creating products and services that provide useful and usable experiences to people.

It is human centered - in that the aim of UX Design is to make technology serve users in an experience that they can understand and enjoy. User experience design considers the entire user process - from their initial awareness of the product or service - through sign-up and on to the ongoing experience.

User experience design understands how to bring together the timing and sequencing of experience with visual design, storytelling and content strategy to create a coherent and cohesive experience.

UPFRONT

Upfront information is often delivered through terms & conditions or sign-up pages that educate the user what to expect before actually using the product or service.

IN-CONTEXT

Additional information or control is offered in context, at the moment that is most relevant to the task the user is trying to achieve or the context they are in.

ON-DEMAND

On-Demand information is available for the user to access when they decide to. It is often presented in a settings page. The issues is that people need to be proactive and have some foundational understanding to act on.

There is an opportunity to increase the effectiveness of data education and control by delivering it in the context of use - this is when users are usually most engaged and can best understand the context.

The Design Jams have allowed us to collaboratively develop initial solutions for data education.
Our results include a range of useful patterns and examples, some of which we've included for inspiration

These patterns draw on content strategy, visual storytelling and UX design to offer new ways to tackle common issues when educating people about data.

1 Consider data education as an integral part of your users' experience

2 Clearly explain the benefits of data sharing

3 Take your time
- there's no need to explain everything all at once

4 Pair education with an opportunity to take action whenever possible

5 Take extra care to explain data types that people may be unfamiliar with to reduce unpleasant surprises.
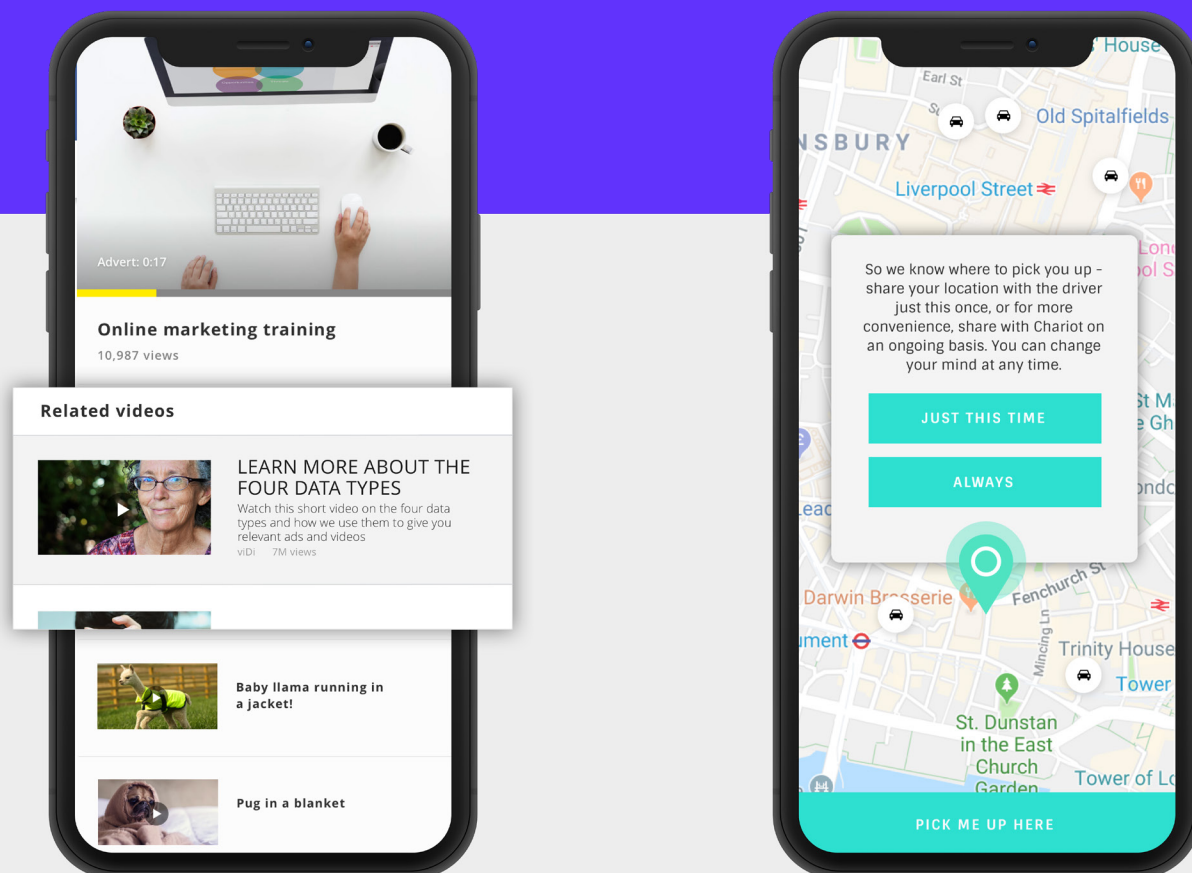
Pattern 1
Consider data education as an integral part of your users' experience

The primary experience can easily break when educational messages are simply bolted on. Embedding information in context means it can be accessed if it is relevant without disrupting the main experience.

For example:

The **default of managing settings** on a service or brand level is blunt and abstract. When educational information can be accessed in-line with the content, people can quickly **find relevant settings and information** without disrupting the main experience.

Pattern 2
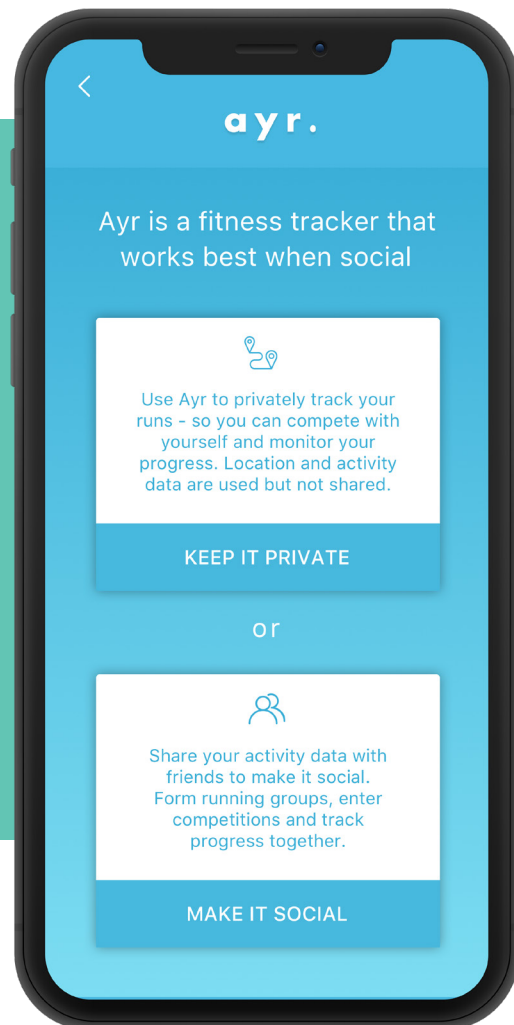# Clearly explain the benefits of data sharing

EXPLAIN BENEFITS BY PROVIDING REAL EXAMPLES

In most cases, there are trade-offs to consider before people can decide if and how they want to share their data. To make sense of unfamiliar digital experiences, people often rely on real-life contexts as a point of reference for what terms seem fair and reasonable.

As opposed to people accessing data settings on a service level, they can be tied to different use cases to make the rationale behind the data use easier to understand.

For example:

If a **running app** is used by the user alone, location sharing is sufficient, whereas if the person wants to also share the experience with friends, the service asks for additional access to the **contact list**.

ayr.

Ayr is a fitness tracker that works best when social

Use Ayr to privately track your runs – so you can compete with yourself and monitor your progress. Location and activity data are used but not shared.

KEEP IT PRIVATE

or

Share your activity data with friends to make it social. Form running groups, enter competitions and track progress together.
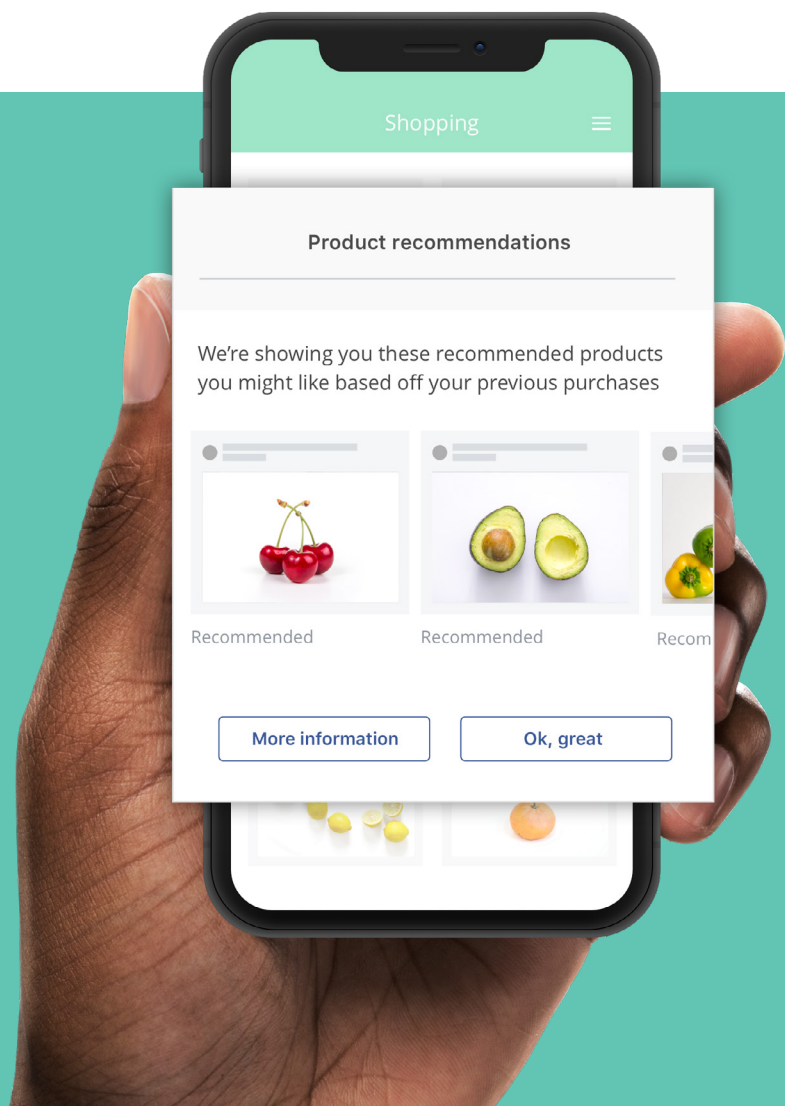
MAKE IT SOCIAL

DEMONSTRATE THE EFFECT
WITH PREVIEWS & VISUALISATION

To be able to weigh whether to share or withhold their data, people want to understand the consequences of their options. One way of doing this is by showing people how their decisions affect their user experience, for example with a preview of content that is available only when data is shared.

For example:

Let's consider the **real-world grocery shopping scenario** where a person could be surprised to see a **digital ad coupon** after only purchasing bananas earlier in the week in-store.

Where and how could data education have played a role? In this example, the person is informed that the data that the retailer has collected about **previous purchases** now allows them to make **product recommendations**.

Shopping

Product recommendations

We're showing you these recommended products you might like based off your previous purchases

Recommended   Recommended   Recom

More information   Ok, great

Pattern 3
Take your time. There's no need to explain everything all at once
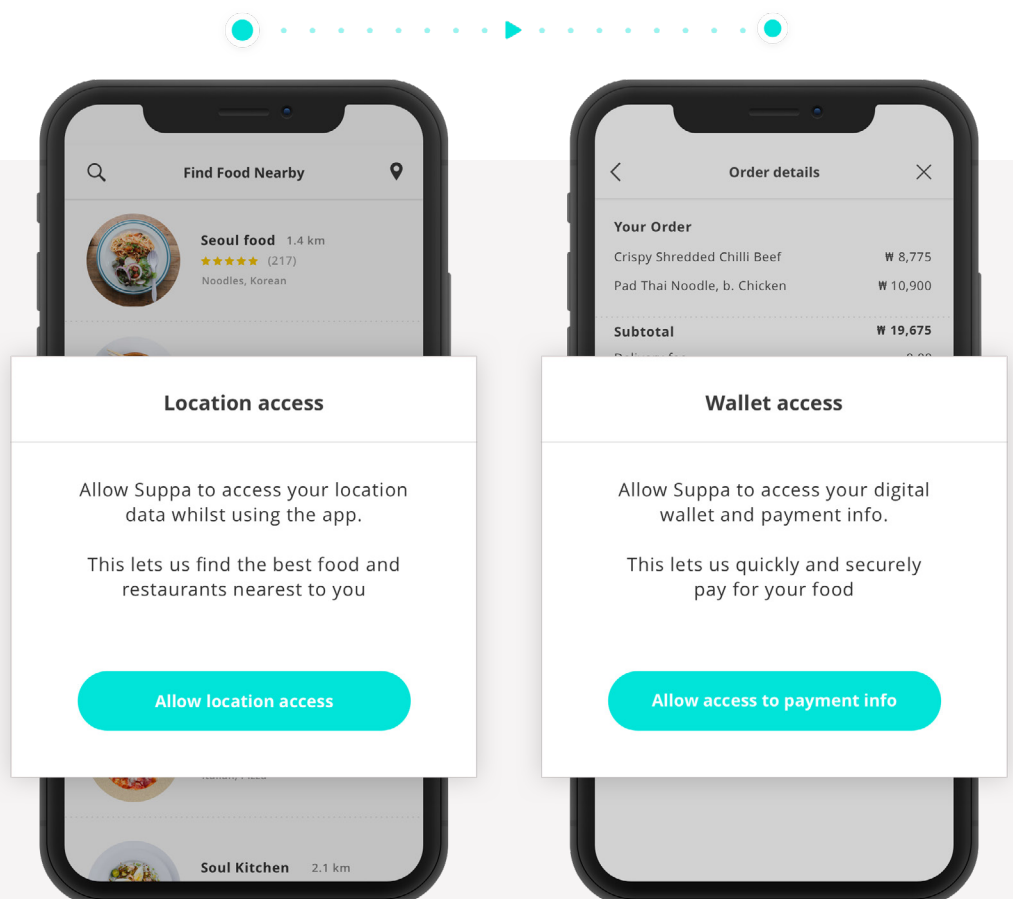
PROGRESSIVE DISCLOSURE

The level of detail that is most useful can be very different from person to person and can change depending on the context. When information is 'nested', people can learn more depending on their level of engagement and interest. This way, layers of information are revealed without burdening them up front.

For example:

Consider a person ordering **food via an app**.

The app lets them know that when they **share their location**, they can access a **customized supplier list**.

Separately, when the person pays for their purchase, the app also educates them on their service requesting access to their wallet.

Find Food Nearby

Seoul food 1.4 km
★★★★★ (217)
Noodles, Korean

Location access

Allow Suppa to access your location data whilst using the app.

This lets us find the best food and restaurants nearest to you

Allow location access

Soul Kitchen 2.1 km

Order details

Your Order

Crispy Shredded Chilli Beef ₩ 8,775
Pad Thai Noodle, b. Chicken ₩ 10,900

Subtotal ₩ 19,675

Wallet access

Allow Suppa to access your digital wallet and payment info.

This lets us quickly and securely pay for your food

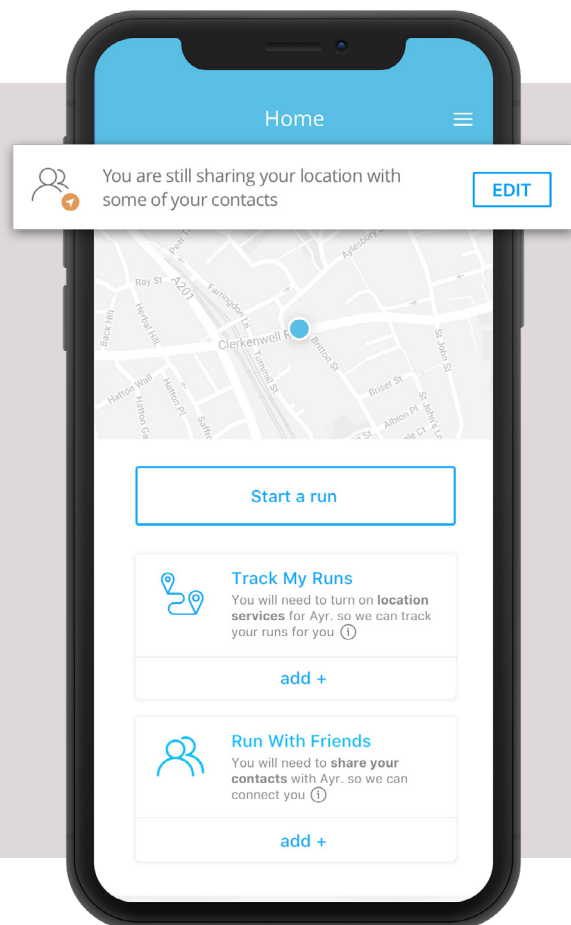**Allow access to payment info**

PERIODIC CHECK-IN

People's needs and preferences for data sharing can change with time, or sometimes instantly when there is a change of context. For example, a person might feel comfortable sharing their location when using a navigation service, but might not want to share it on an ongoing basis. Time-based check-ins on data settings can prompt people to review their current settings to confirm or change them. They can also help to build trust by proactively putting people in control of their experience.

For example:

Services in which the same information can be private, shared or public depending on context need to consider reminding people to review their settings.

A music streaming service might want to inform the person that their content is still shared on a shared loudspeaker, or an insurance company might want to let a customer know that they can access their health records.

In this screen, a **running app** alerts the person to the fact that their friends can still access their location even though their run has likely already ended.

Home

You are still sharing your location with some of your contacts

EDIT

Start a run

Track My Runs
You will need to turn on **location services** for Ayr. so we can track your runs for you ⓘ

add +

Run With Friends
You will need to **share your contacts** with Ayr. so we can connect you ⓘ

add +

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CONTEXTUAL CHECK-IN

When people's circumstances change, especially their social context (e.g. the start of a new job), their needs and preferences might change significantly.

When a product or service can infer events that might be relevant to data sharing, the user can pro-actively be given the opportunity to change their preferences.

For example:

Here, a graduation from university has triggered a message so the person can review which contacts should be able to see their posts in the future.

Event-triggered reminders are particularly important to consider for services that allow people to **share potentially sensitive information with others**, such as **social media platforms** or organisations that hold **financial information**.
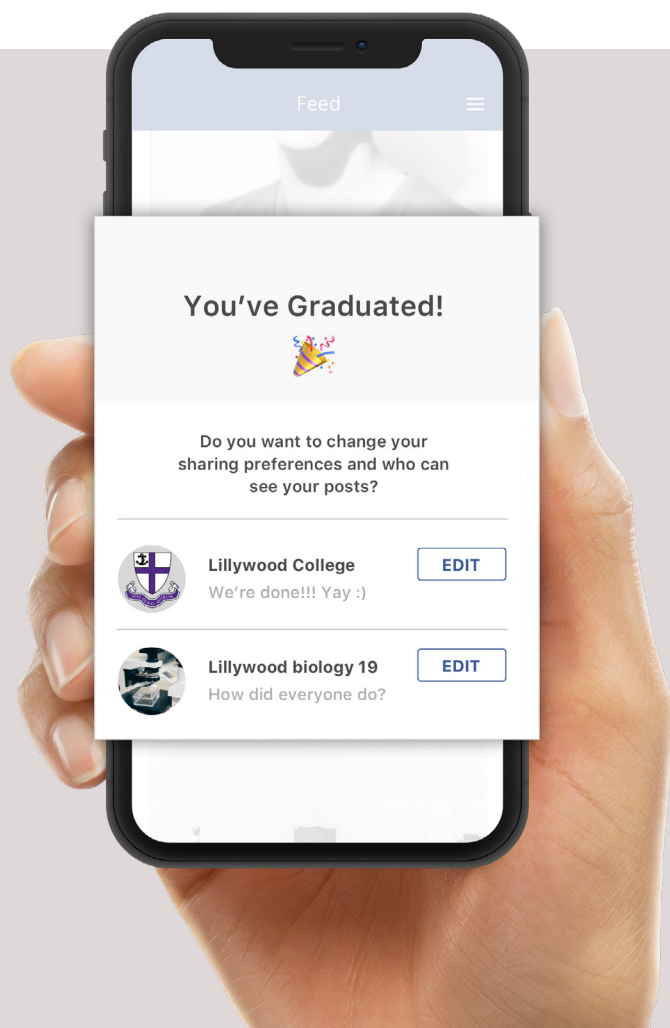
Pattern 4
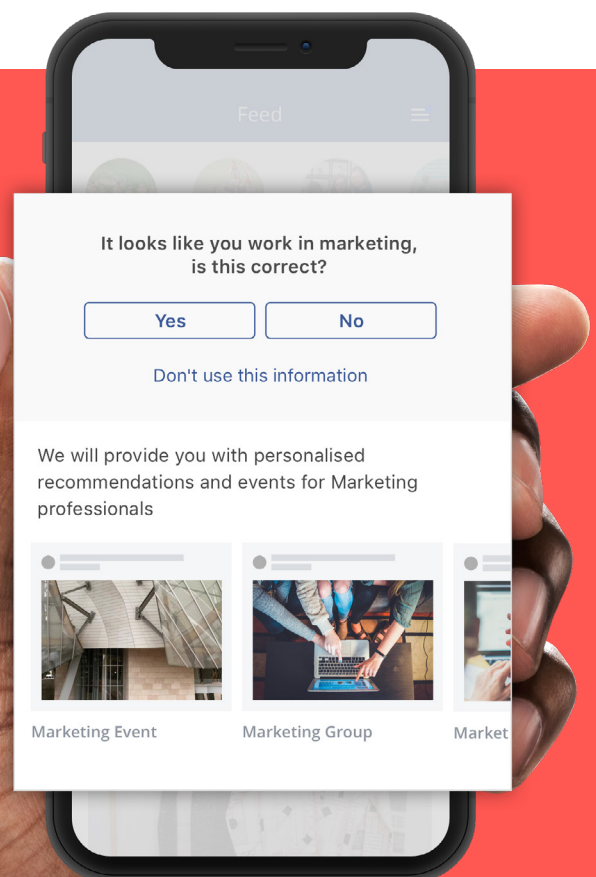# Pair education with an opportunity to take action whenever possible

EMPOWER PEOPLE
WITH INFORMATION AND CONTROL

Once people take the time to learn about data, it helps to explain what action they can take to control how that data powers their experience. Contextualizing controls within education can help people make more informed decisions about their experience.

For example:

Here, a **job platform** tells the person that, based on recent usage data, it is now inferring the user's professional status and gives them the opportunity to confirm or dispute the assumption; or to disregard the underlying data altogether.

A retailer such as an online supermarket might make assumptions about which products a person might be interested in, or a service provider might want to show relevant services based on previous behaviour. This can be problematic when the underlying assumption is wrong (e.g. a **supermarket** believing the customer is vegetarian or halal), private (e.g. a **news platform** assuming a pregnancy) or unwanted (e.g. a service provider inferring a desire to lose weight).

It looks like you work in marketing, is this correct?

Yes   No

Don't use this information

We will provide you with personalised recommendations and events for Marketing professionals

Marketing Event   Marketing Group   Market

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Pattern 5
Take extra care to explain data types that people may be unfamiliar with to reduce unpleasant surprises

People often feel surprised when they realize the extent to which their data is connected. For most, making the connection that their actions in the physical world impact what they see online can be a negative experience. We need to educate and familiarise people about the flow of their information, from how it's passed within a single company, to how it flows between companies. When the effects of data sharing are brought to life and relate directly to the choice in an interface, expectations are clearly set and surprises are avoided.
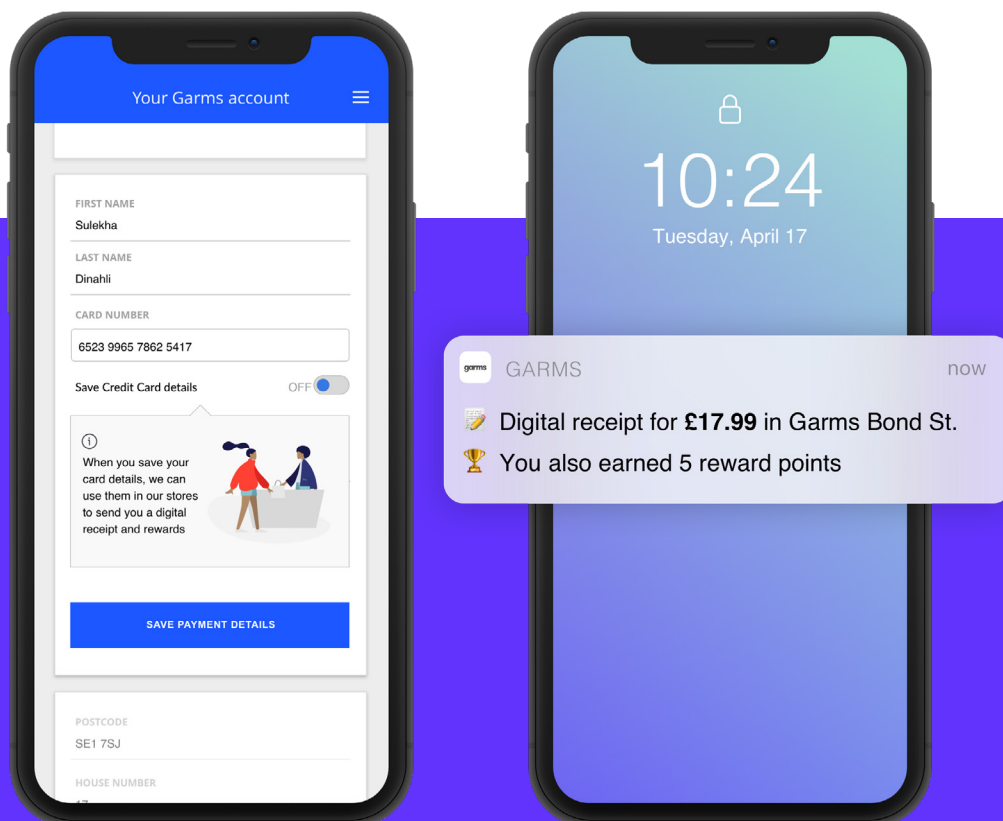
For example:

Within a **fashion retail app**, if a credit card can be stored for use in both real and virtual contexts, make the connection clear when a person is making the choice to save **credit card** information on app. Use illustrations and visual metaphors to help make the choice relatable and comprehensible for people.

If asked **in store** for an email address to send a digital receipt, educate people using physical banners and posters so they understand that their purchase has been recorded and associated with their account, and how that data may be used elsewhere.

These patterns are the result of a collaborative effort but they are just a first step towards industry-wide data education

We need the larger community to continue these efforts

We know that no one company can solve this alone - we're excited to continue partnering with businesses to iterate on best practices and approaches

Over to you...

This was achieved through a one-day design thinking workshop

We don't have all the answers, this is a starting point and we would like you all to take this on and add your own responses...

Data is a complicated topic, but it's critical that businesses take the time to explain how they use data in a way that's understandable and accessible to people. Unclear or absent information about data, for example how it's used for marketing or ad targeting, can be frustrating for people when they have experiences they don't understand. Equally, poorly designed or delivered information can create confusion as well as being an obstacle to a smooth user experience.

It's not easy to communicate with people about a complex topic like data in a way that everyone can confidently understand. Ultimately, data education is an opportunity to increase trust between businesses and their customers, and facilitate more meaningful connections.

Different solutions will work well for different contexts, and a great deal of further innovation is needed. Within the TTC Labs platform TTCLabs.net you can find a range of open-source resources, from design toolkits to advice from expert designers and academics about designing for trust, transparency and control. You'll also find a wide range of other design patterns contributed by teams from Design Jams all over the world.
We invite you to explore the site and to connect with us if you are interested in contributing to this evolving library of materials and resources.

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To learn more, connect with our team or to explore collaboration, join us at **TTCLabs.net**