Data Material Book

Ideas, Information & Concepts about Data
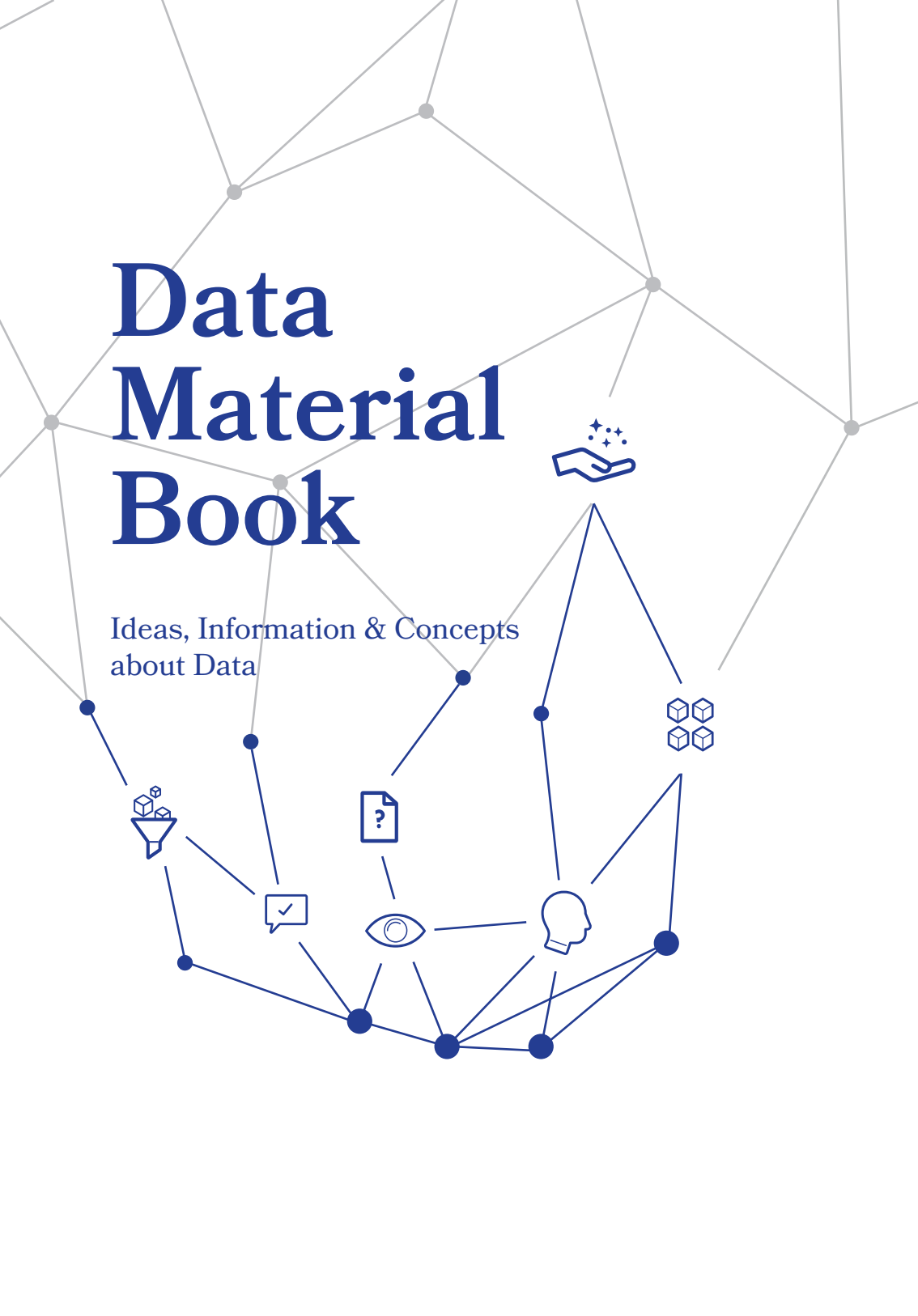
Index

Data Everywhere

Data is here, data is around us. We create it each time we interact with our precious digital companions, mostly without realizing. The digital services and products that we use know a lot about us and communicate with each other, in the language of data.

Data is like water. It is stored, it is filtered and converted into new forms. Byte by byte. This happens in businesses as well as in governments.

We usually only become aware of the full scope of our connected environment when things go wrong. For example, a security breach in service provider's database can reveal masses of personal data about millions of people. This can include very private information like sexual preferences, personal conversations and bank details. Failures in data handling, such as these, are unfortunately becoming more and more common.

A whole new universe of possibilities has opened up in terms of how we can explore and use data. One big issue in this process is the responsible use of that data and the consideration of how this can impact people's lives.

»Behind every single point of data is a human—a real person.«

Rochelle King,
Global VP Product Design
and Insights, Spotify

Why Do I Need This Book?

As designers, we are the forefront of technological advancements that can have a huge impact on society. We draw from the flux of data and give new digital products a face with which people can interact. The source of our data is usually human; in the form of behavioural tendencies and personal information. We are able to take this information, reflect on it, create new ideas and validate our existing theories. Data allows us to design seamless services and beautiful things that benefit many people's lives.

The role of the designer is becoming increasingly broad and with this comes increased responsibility to uphold what we create. Many companies give few thoughts to the consequences of their use of personal data, or use ethically questionable ways to collect it. Just take the example of Facebook's »internet.org« campaign: Which grant people in regions with weak infrastructures »free internet« to access only facebook. It is important for designers to understand the sources of data, how to make the best use of it for their project, but also importantly: how to use it in a responsible and ethical way. This book will be your guide to this.

»It seems that we are heading towards a critical point, at which it will be decided how the digital world is going to look in the following decades. Are advances in technology always good in the end? How much power should private companies have over our lives?«

Thomas Schulz ,
author of »Was google wirklich will»
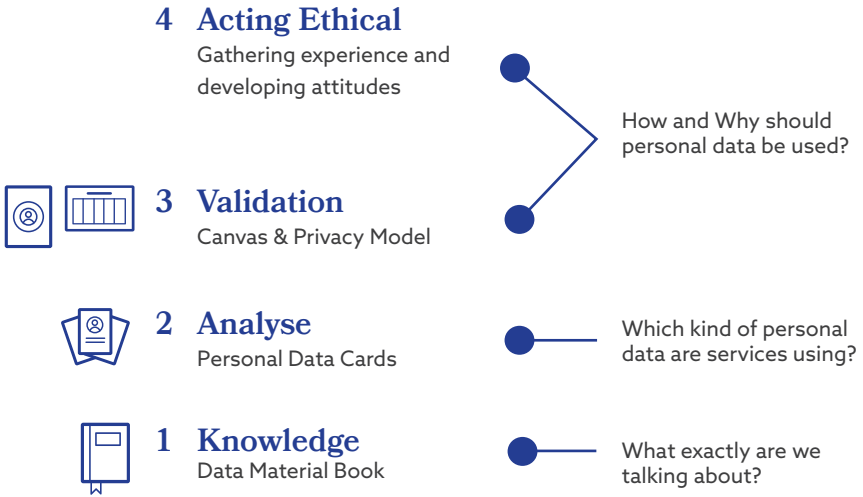
How Does This Set Work?

This workbook is part of a set, which also includes cards for ideation for your project, a canvas and a model for evaluating your ideas.

The book should be your guide through the complex topic of handling human data in the design process and teaches you the basics of the concept data.

It has been created to help you, regardless of the kind of design you are working on: whether you are a service designer creating a new business model or an interaction designer optimising a digital product. It will help you in the form of information, tools, and experience to start your project. This book does not claim to be a complete guide or cover all levels of the topic of data. The focus is on the private sector. But when it comes to human data, this is a great starting point.

In the first four chapters, the book gives you a brief overview of the topic data. In chapter four »Data and your Project« the focus is on different steps of User-Centred Design processes to give you first-hand ideas and tools to start your project.

4 Acting Ethical
Gathering experience and
developing attitudes

How and Why should
personal data be used?

3 Validation
Canvas & Privacy Model

2 Analyse
Personal Data Cards

Which kind of personal
data are services using?

1 Knowledge
Data Material Book
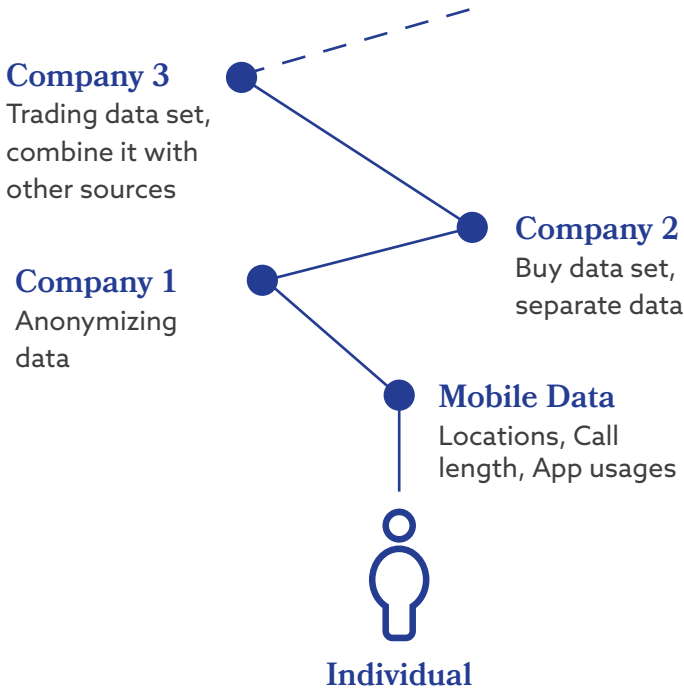
What exactly are we
talking about?

Design Human Data Kit

Data & Design

Data Has Many Faces

Many things in our environment produce data automatically without human influence. From automated processes in factories to smartphones. Data floats between devices, services, and companies. Once produced, recorded, and aggregated they begin their complicated existence. They can be anonymized, separated, interpreted, and combined into new forms. But it's nearly impossible to delete a particular data set once it has been produced and is part of the data supply chain.

Company 3
Trading data set, combine it with other sources

Company 2
Buy data set, separate data

Company 1
Anonymizing data

Mobile Data
Locations, Call length, App usages

Individual

Data in this Book

This book looks at data as being more than numerical outcomes. Normally, data are distinguished in two rough directions: quantitative and qualitative data. **1** Quantitative data is gathered in a numerical form, which can be put into categories or measured. **2** Qualitative data is empirical and comes in the form of observations and interviews. But regardless of the form, all data needs humans to interpret it.

1

2
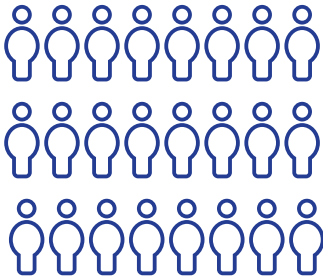
What happened?
5320 people visited the web-shop this month. Only 13% bought something.

Why did it happened?
Over 20 people have reported payment problems to customer support.

Besides these two distinctions, there are many other sources of data, and this book will focus on humans as the main source. Generally, this is known as personal data. The handling and scope of personal data differs from country to country. For example, the US Government has comparatively little regulation over the use of personal data, whereas the European Union has much stricter rules.

This book works with a model of personal data from the world economic forum, which was created independently of definitions by local governments.

Personal data affects many areas of our lives

Which videos did
I watch?

Who are my
friends?

What did I have
for lunch?

Certificate of
good conduct

Content

Relationships

Activity

**Government
Records**

Identity

Communication

Healthdata
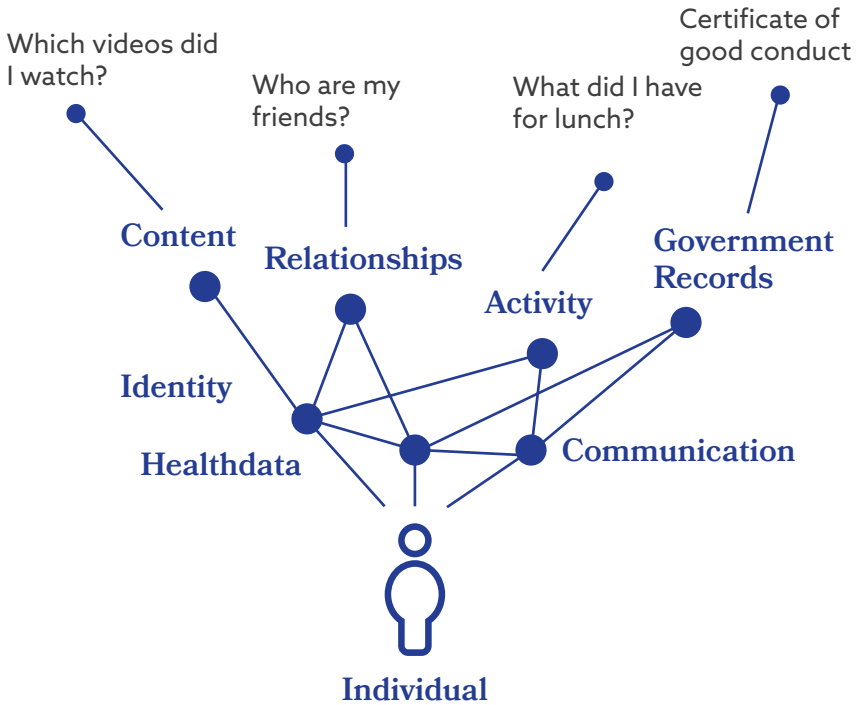
Individual

Inferred data - Data about individuals based on the analysis of volunteers or observed information, e.g. credit scores

Observed data - records the actions of individuals, e.g. location data when using mobile phones.

Voluntary data - created and explicitly shared by individuals, e.g. content in social networks

We define personal data as…

Data (and metadata) created by and about people

in the categories of…

Data Can Improve Your Work

Models like the User-Centered Design or Human-Centered Design approach focus on users and their needs at all stages of the design process: from the initial research and strategy phase to the design and development of a product. The right mix of data will help you and your team to identify problems (quantitative data: e.g., surveys, a/b testing, web analytics) and let you get to the bottom of why something is happening (qualitative data: e.g., interviews, observations). This mix will increase the quality of the work by your team and ensure that people and their needs are always at the forefront of your thinking. In the chapter »Data and Your Project« this book will give you tools and strategies to help you make the most of the data available to you for your project.

»If you only have quantitative data and no qualitative data, you understand what happened but you don't understand why. If you have only qualitative data, you understand why but not what happened.«

Dave Lippman,
(VP Design eBay)

Expertise & Alliances

As designers, we are able to overcome silo mentality with our interdisciplinary approach of combining methods from different fields. We ask questions to gain a new perspective on situations. When you are new to the field of data, there is no shame in beginning by asking questions in order to understand the practices of your company or client. What do we need the data for? How do we aggregate data? How will our use of personal data impact people's lives? These are all relevant questions.

Sometimes not all your questions can be answered by the person who you usually consult about your projects. But the experts are there if you look for them; people who can give you answers or help you to refine your questions inside the work environment.

Speak with a data analytics team or developers who regularly work with data. You don't have to become a data scientist or a business analyst yourself.

But the more you know about data processes and the models behind them, the more chance you have of influencing the current practices within your project or company. Get in touch with people and share your current understanding. This will help you build on your knowledge and create alliances for future ideas.

Intuition & Gut Feeling

Designing in a digital age is always a fine balance between data and intuition. Data shows you in hard numbers or softer analysis the performance of your work. Do the ideas which you and your team created work? How are people responding to your ideas? Far too often discussions go in the direction of data (or performance) vs. intuition. But this doesn't lead us anywhere. Data can give you hints or suggestions to start your work and give you answers beyond »yes« or »no«. But they do not provide the ultimate truth. They can give you answers to your questions if you ask the right ones - depending on the method and the diversity of your team. But it's always up to you to decide if you take these suggestions on board. Use data experts and methods to strengthen your feeling about an idea.

Intuition

Data Informed

Quantitative
Data

Qualitative
Data
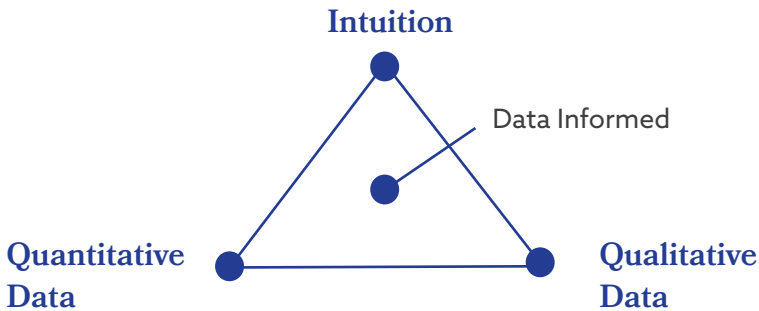
It's not about becoming a data expert yourself. According to King, Churchill and Tan in the book »Designing with Data: Improving the User Experience with A/B Testing" there are two distinct categories to describe the different levels of data knowledge appropriate for different kinds of projects.

It is good to be data informed when dealing with a concrete project, as it helps you to know more about a specific problem. It is better to be data aware when dealing with a broader range of problems, as it helps you to think more strategically about the use of data.

Combine your experience and intuition with well designed and suitable data to make better decisions. Stay true to the credo »lead through your intuition, be informed by data, be driven by empathy.« In the chapter »Data and your Project« this book will show you tools and strategies to benefit from data in your project.

1 ●   Data   Data   ● 2
            aware   informed
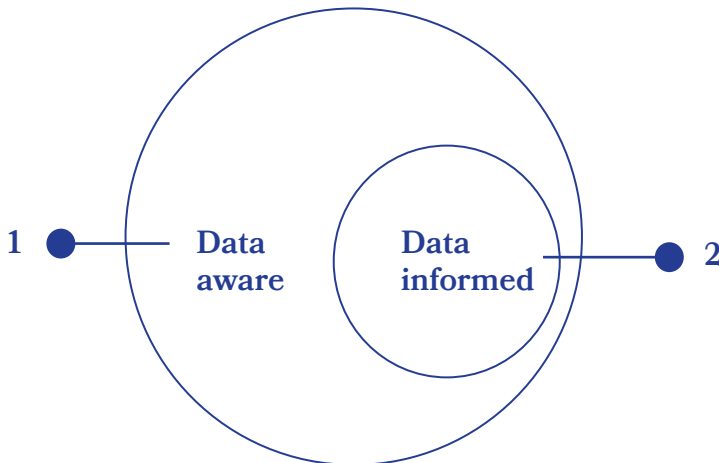
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Data aware
A more philosophical and stra-
tegic view on data.

You think about many kinds of
problems with a diverse set of
data in mind.

Example: »We have a plan to
improve our service by offering
customers their data in one
place.«

2

Data informed
The practice around data.

Being data informed is a crea-
tive and highly iterative pro-
cess. You have an awareness
of options and mechanisms to
help you learn more about a
specific problem.

Example: »Our online behavior
data shows, that customers
hardly use our FAQ section.
Let's ask customer support and
interview some customers to
find out why.«

»Good design begins with honesty, asks tough questions, comes from collaboration and from trusting your intuition«

Freeman Thomas,
(Industrial Designer)

Data: Roles & Goals

Our ideas about specific job roles within companies are changing and expanding due to the increase in the sources of data available to us and the larger range of projects that arise from this. Data permeates our projects from all sides and makes it necessary that we adapt ourselves and our tasks accordingly. This chapter describes new ideas for professional roles. Which may arise.

Data Strategist

Similar to the Design Strategist, the Data Strategist combines creative and analytical skills to create innovative strategies. The role implies discovering new opportunities in the data field and working on strategies to plan, store and use aggregated data in an ethical and balanced way for all involved parties. For example, a Data Strategist could work with different stakeholders to create an overview about a company's data silos and ideate new ways to connect these silos to benefit customers in the future.

Knowledge
As Data Strategist you have...

- ... a balanced ethics compass
- ... an understanding of the impact and importance of quid pro quo strategies with people and their data
- ... an understanding of common practices of data aggregation
- ... an advanced understanding of data supply chains and their influence on business cases/models
- ... an overview of the data market and its players

Responsibilities
As a Data Strategist you ...

- ... are a business partner at strategy level and communicate with stakeholders on an equal level
- ... are in charge of discovering the (hidden) data silos of companies involved in your project
- .. break silo thinking inside companies and ask questions about current data practices
- ... speak the language of experts in the business and (tech) data field
- ... are in charge of helping companies create healthy long term data strategies
- ... support product/project teams with your insights

Data Creative

A Data Creative explores current trends in technology and looks to see if they can use or adapt parts of these technologies for use in their company/project. This knowledge can be used to inspire people to come up with innovative ideas, with an ethical and balanced approach. For example, the Data Creative can experiment with open AI technology and current data sources to inspire companies to improve their customer service.

Knowledge
As Data Creative you are ...

- ... curious about new technologies and current trends
- ... patient and passionate: you broaden people's minds and help them to see new possibilities
- ... brave in overcoming silo mentality inside companies
- ... able to unite people for your vision
- ... able to inspire people with new possibilities of technologies

Responsibilities
As a Data Creative you ...

- ... a balanced ethics compass
- ... an advanced understanding of interpretation of data (sources/sets)
- ... knowledge about using design techniques which can help you and other people to gain new perspectives on....
- … a good understanding of data visualization in order to communicate your ideas
- … the ability to speak different languages to communicate your ideas to different target groups

UX Designer

The UX designer, short for User Experience Designer, has emerged from different fields with different specialisms. Depending on the work environment, the profile of the UX Designer is constantly shifting. The definition given in this book could therefore deviate from your own personal experience.

UX Designers work on the full range of the user experience development process for a product. They ensure user satisfaction and act as advocates for users in the process.

Design

Business

UX

Technology
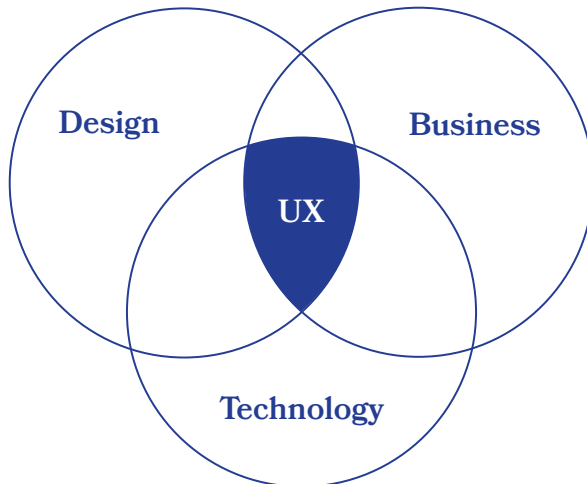
Knowledge
As UX Designer you are ...

- ... coordinate/perform product research
- ... communicate/ align with stakeholders
- ... create interaction design concepts with your visual design team members
- ... build information architectures
- ... ensure the alignment of user needs and product goals at all stages of the development process
- ... guarantee the quality of the output by encouraging communication within the product team

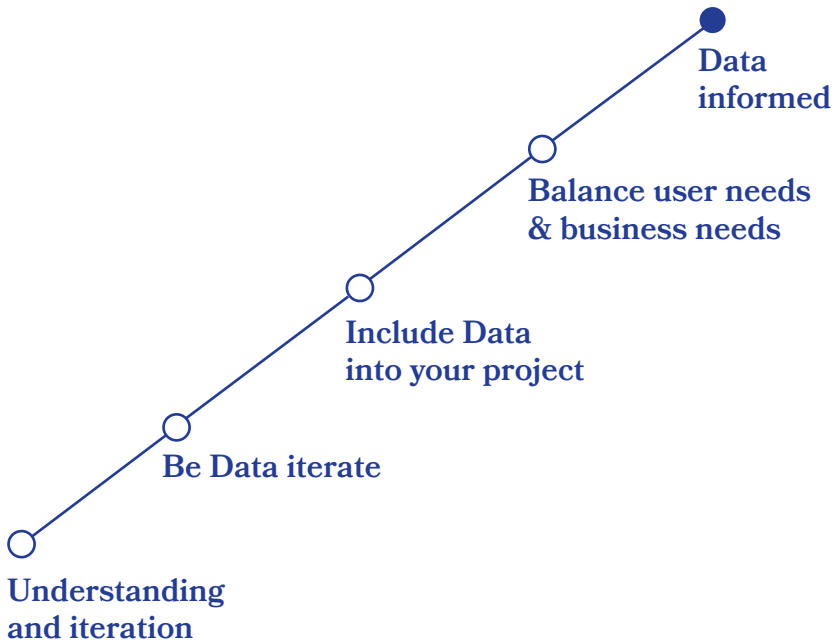**Responsibilities**
As a UX Designer you ...

- ... the ability to discuss/evaluate visual design outcomes
- ... an understanding of current technologies
- ... the ability to prototype your ideas in the form of interaction design concepts
- ... an understanding of how to interpret data (qualitative/ quantitative)
- ... knowledge about using design techniques which can help you and your team to gain new perspectives on problems
- … the ability to speak different languages to communicate your ideas to different target groups

Additional Data Abilities

- **... integrate data sources to enhance the user experience of your project**

- **... be able to iterate data**
- **... combine user needs and business goals on an equal level**
- **... understand how to interpret data (qualitative/ quantitative)**

Data Abilities for UX Designers

The UX designer, short for User Experience Designer, has emerged from different fields with different specialisms. Depending on the work environment, the profile of the UX Designer is constantly shifting. The definition given in this book could therefore deviate from your own personal experience.

Data informed

Balance user needs & business needs

Include Data into your project

Be Data iterate

Understanding and iteration

Understanding Data Outcomes

As mentioned in the section »Data in this Book« there are two main categories of data: qualitative and quantitative. Each of them uses a different approach for garnering the data, but only together can they create a full picture of a situation. As a UX Designer you are in charge of interpreting results garnered from these methods. You have to enable your team to make choices based on data outcomes. This does not mean blindly trusting the data outcomes. Data iteration will be a big part of your job. See »Being Data Literate« for the definition.

When you are working in a small company or a company which is starting to use possible data sources, you will find yourself executing data related tasks like interviewing people, testing the assumptions of product development teams, running a/b tests, iterating behavior data sets from digital products or running benchmarks. This doesn't mean that you have to understand all the tasks in detail. But you should be ready to dive into a new level of complexity. Speaking the same language as the data experts will help you to communicate and develop a higher level of understanding of them and their work.

Requirements
- Create an understanding of the methods used to aggregate data
- Perform aggregation of data by yourself
- Ensure your team has a basic understanding of the methods
- Be data literate and maintain a healthy scepticism
- Connect data experts with resources within your project or company to create the best outcome

	Qualitative Data	**Quantitative Data**
Purpose	Understand & interpret social interactions	Test hypotheses, look at cause & effect and make predictions
Type of data	Words, Images or Subjects	Numbers & Statistics
Form of data	Open ended responses, interviews, participant observations, notes	(Online) statistics in the form of reports and data tables
Type of analysis	Identify patterns	Identify (statistical) relationships
Collection method	Interviews, observations	(Online) surveys, (web) analytics

Being Data Literate

In short, being data literate means maintaining a healthy scepticism, or as Dan Turner describes it: »bullshit detection«.[1] This means when you come into contact with data, for example in the form of product statistics, interview results or business analytics you should always check the source & context of the data, potential biases and even numerate the data.

»When you don't understand what data can and can't tell you and your work is being dictated by decisions based on that lack of understanding—well, your work and product might end up being rubbish.«

Jared M. Spool,
(researcher, co-founder of Center
Centre and the founder of UIE)

1   Turner, Dan. „Why We Should All Be Data Literate», 12. Februar 2017. http://alista-part.com/article/why-we-should-all-be-data-literate.

Check source and context
Ask questions and talk about the context until you understand and can answer questions like:

- What is the source of the data?
- How was the data collected?
- What can the data tell you?
- What can't the data tell you?
- What metric was used to form the data?
- Is the metric still up to date?

Be numerate
»30% more conversion« sounds a lot. But what does this actually entail? You need to know the numbers behind these kind of statements. With questions like:

- How much is the current amount?
- How large is the whole sample?
- How much effect do the results from the sample have on the real world?

Check your biases
Everyone has cognitive biases and that is OK. You should be aware of that and adjust your actions accordingly, especially when you are interpreting data. Selection bias[1] describes a situation in which the sample you are measuring is not random or representative. This can happen when you accidentally or intentionally try to skew the results or carelessly overlook the context.

Confirmation bias[1] means that you only analyze the parts of the data which confirm your thesis. Ask yourself regularly during the interpretation questions like:
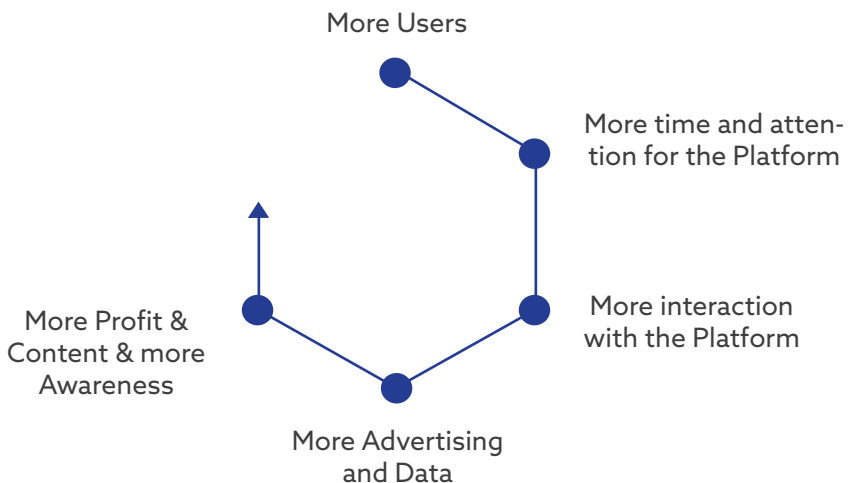
- Which data do you want to select to measure something?
- What do you want to measure?
- Did you check the context of your interpretation?
- Do the results speak for or against your thesis?
- Are there any data that contradict your thesis?

If you want to check your data literacy level in detail you do this with the matrix from »Doing Good with Data« from Helena Sternkopf or for companies you can use the Forrester model »The Digital Maturity Model 4.0« from the »Digital Business Transformation Playbook«

Balancing People's Needs and Business Goals

Currently there is what has been termed as a »free culture« of people on the Internet. This means people are used not to pay for things they find online. They are willing to pay a lot for the access to the internet in form of smartphone, but online they are reluctant to spend money e.g. software. To counter this, companies are resorting to »free« access to their services. But free really only refers to the first time you access the service. With every subsequent use, personal data is generated which are collected, cleaned and newly linked to other sources of data by these companies. The people using the service have little control over the processing of the data and no share in the profits.

This approach creates an unhealthy cycle for companies and people. To maintain and increase profits, companies must constantly attract new users. The goal is to keep the user connected to the service as long as possible to generate more data and iterations.

More Users

More time and attention for the Platform

More interaction with the Platform

More Advertising and Data

More Profit & Content & more Awareness

To counteract this cycle, it is important to bear in mind three factors: transparency, control and value. In combination, this model will benefit people as well as companies. It gives each party involved the opportunity to develop a healthy data partnership.

**Why is a Healthy Data Partnership Important?**

People

- Giving people control over their data promotes people's trust in a company and will increase the willingness to correct mistakes in their aggregated data.

- Educating people about the value of their data will increase their view of value for a product.

- Reasonable handling of personal data will increase the identification of people with the values of a company.

- People's lives change constantly, the easer they can port their data, the higher is the chance them begin to experiment with their data and create new ideas.

Companies

- Creating a solid business model besides selling personal data ensures stable scaling with less pressure on getting more people to aggregate data from.

- Caring about the data of customers means creating a long-term trust relationship with customers. This helps to stabilize the market position.

- Less data means less problems, the more data companies store the more they have to take care of, which means a steady increase of costs and non-calculated risks.

- Creating assessable products without using an aggressive approach on personal data aggregations means creating an innovate competitive advantage.

The Basis for a Balanced Partnership
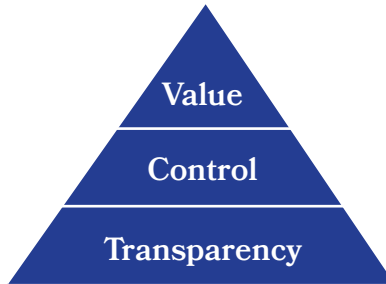
Transparency
Create transparent processes in which all parties know which data is being captured, why and how the data is further processed.

Although personal data is fragmented and abstract, people feel the need to control it. So, invisible processes must be made visible and tangible.

The following points must be clearly communicated before and during data refinement:

- What data will be captured?
- Why this data will be captured?
- How the data will be processed and shared?
- How the data will be stored and secured?

Control
Guarantee all data producing parties the right to access, amend, blur and port the data they produce.

People want control over the data they produce. This control can be separated into four different rights:

- The right to access their data
- The right to amend their data
- The right to blur their data
- The right to port their data

Uncontrolled proliferation of this information must be prevented under all circumstances.

Value
Acknowledge the value of the generated data and make sure that there is always an equivalent and appropriate equivalent.

Individual datasets seem to have an inherent value. But they form the basis for mining and interpretation in order to create new information. This means that the dataset will create an equal or even bigger value.

Data: Ethics & You

Guiding Principle

As designers we come into contact with a lot of different people. We work for different clients and stakeholders and design products and services for a wide range of users. What defines these people as individuals are often criteria such as their personal goals, life plans and their political orientation. Online, it is easy to see that people separate these different aspects of their personality into different digital identities. On Facebook, for example, they may be open and friendly, talking about things that have happened in daily life and joking around. In contrast, on business networks such as LinkedIn and Xing, they are typically more serious and focus on sharing only the essentials. In this way, they live out different aspects on their personality on each digital platform and create different sets of data about themselves. This makes them the owner of this data and it should be their decision if and when they want to share the data, or connect different parts of their digital identities.

People act as individuals in the real world. Tangible and unique. In the digital world people create digital identities for their facets. They become their own data source. Which gives them the right to access, amend, blur and port their produced data.

New Chances (GDPR)

The European government passed a new privacy law called »General Data Protection Regulation« (GDPR) which includes new rules for governments and companies in handling and processing personal data. The new law was created from the citizen's perspective to maximize transparency and enhance digital rights. The new rules will enter into force in May 2018. This gives us, as designers, the opportunity to align our products and services more closely with the rights and needs of people. The new law is not a burden but a strong partner for true people-centricity. Here are some of the most important facts:

Consent
A company or organization must obtain the consent of people whose data are processed. This must be communicated in a clear and simple language. It is a company's responsibility to prove that a individual has actively given consent.

Data Portability
Individuals have the right to take their data, which they shared with a company, when they change to another service (provider).

Age Limit
Children below 16 years cannot give consent for processing their data. (Individual states can lower the age limit)

Profiling
Individuals have the right to object to the creation of profiles of their data. Companies must communicate clearly when they use customers data.

Privacy by Design

Companies and organizations must minimize the processing of personal data and create transparency in relation to its handling. This means pseudonimizing data as soon as possible.

Accountability

Companies and organizations which process data must have a privacy policy. They must document data processing procedures and ensure the responsibility of their employees.

The Right to Erasure
(or The Right to be Forgotten)

Individuals have the right to delete their personal data. This includes information such as links and copies of data held by third parties.

The Right to Know About Data Breaches

Companies and organizations must report serious breaches of data protection rules to the national supervisory authority as soon as possible. The notification must take place within 72 hours.

Fines

Fines can be issued by any company from 20 Million Euros up to 4% of a company's annual turnover.

Privacy Impact Assessment (Pia)

Companies and organizations which are processing data must prepare reports which describe the influence of their processes on individuals' rights and freedoms.

Data Protection Officer
Public institutions, companies and organizations with core business data processing and systematic monitoring are obliged to appoint a data protection officer (DSB). The DSB is an employee with expertise in data protection laws that ensure compliance with EU directives.

Data Exchange With Countries Outside the EU
Companies and organizations may not transfer personal data to other countries outside of the EU, if they don't have the same protection standards.
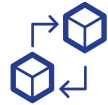
Conditions for Processing Data
The collection and processing of personal data may only take place if there is a certain legitimate purpose. The data collected must be relevant, minimal and absolutely necessary for this purpose. The data cannot be reused and must be deleted after processing for the communicated purpose.

Best Practices

A few companies have already taken the chance to go further than the current regulations. They empower people to take control of their data and establish a trustworthy data partnership. These companies provide people with tools to enhance their data privacy or claim »privacy by default« as one of their core values. These are just a few examples how human-centered products and services can be inspiring and successful.

Health

Clue - Period and Ovulation Tracker
helloclue.com

The Berlin based company helps women monitor their monthly cycle and fertility and provides new insights into reproduction and health research. The company made the protection of their 5 Million users' extremely sensitive data one of their core values.

Core Facts
- Clear communication of data handling in their privacy policy
- Customers can use the app without an account
- Customers can port their data anytime
- Anonymized data will be used for clinical and academic research
- Located in Germany under strict data protection laws

Search

DuckDuckgo – Search Engine
duckduckgo.com

Founded on the principles of breaking the »filter bubble« effect and enhancing people's privacy, the company provides a search engine which does not follow or track people.

Core Facts

- Clear communication of data handling in their privacy policy
- No creation of profiles of people's behavior
- No tracking of IP addresses of people's devices
- No usage of unique cookies to follow people on other sites

Communicate

Wire Messenger
wire.com

Supported by on one of the original Skype investors and former Skype engineers, wire is a messenger service built upon the idea of private communication. It provides end-to-end encrypted chats and video calls on many platforms.

Core Facts

- Clear communication of data handling in their privacy policy
- Located in Europe under strict data protection laws

- End-to-end encrypted video calls, monitor sharing, file sharing and chats
- Focus on user friendliness

Health

TomTom – Fitness Tracker
wire.com

The company that originally provided navigation maps and hardware for cars has created a fitness tracker. Customers can use the tracker without TomTom services and port their data anytime.

Core Facts
- Customers can port their data at any time
- Customers can use the device without transferring their data to TomTom servers
- TomTom only transfers data after consent from customers
- Located in Europe under strict data protection laws

Be Bold, Explore and Think Critically

Today's abundance of data enables us to rethink current ways of working, explore new processes and build on our existing knowledge. To do this we need people who are prepared to question how we use this data and people who can transform it from something abstract into something usable, tangible and sustainable. Designers are in a position to do this by working in interdisciplinary teams to create tools to explore data through visualizations, interfaces and data services.

We are in a middle of a period of change. We are working with ever increasing amounts of data. For example, online surveys results, interviews, protocols or online behavior statistics. The sources of data will grow and become a standard component of our day to day work.

This book is here to prepare you for these changes. It is meant to inspire you to be bold, to welcome new material, explore new possibilities that arise and think critically about the use of data.

Explore

Be Bold

Think
Critical
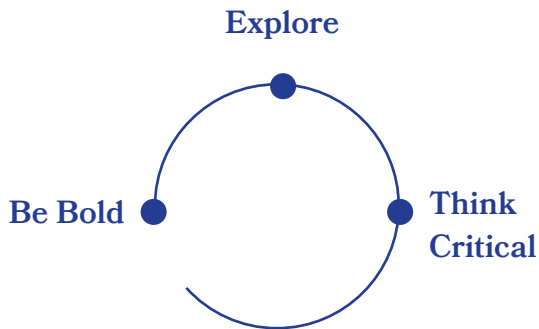
1. **Find new material. Reach out to find people who can help you expand on your knowledge.**

2. **We can be the link between different disciplines, connecting people and knowledge to create meaningful new things.**

3. **When you are accountable to your users, you are probably also eager to find ways to represent them in your decisions.**

»You have a responsibility to the community at large to make sure that what you're signing up to design is worth being designed. That's right, kids: I'm interjecting ethics into the mix. You are responsible for the work you put into the world.«

Mike Monteiro,
(founder of muledesign)

Data and Your Project

User-Centered Design Process

This version of the User-Centered Design process is greatly simplified and should serve as a guide. You can remove or add parts and adapt them to your way of working. This chapter will show you how you can use data at different stages of the User-Centered Design process. You will find a few examples of data sources, strategies for collecting data and tips on how to use the Design Human Data Kit.
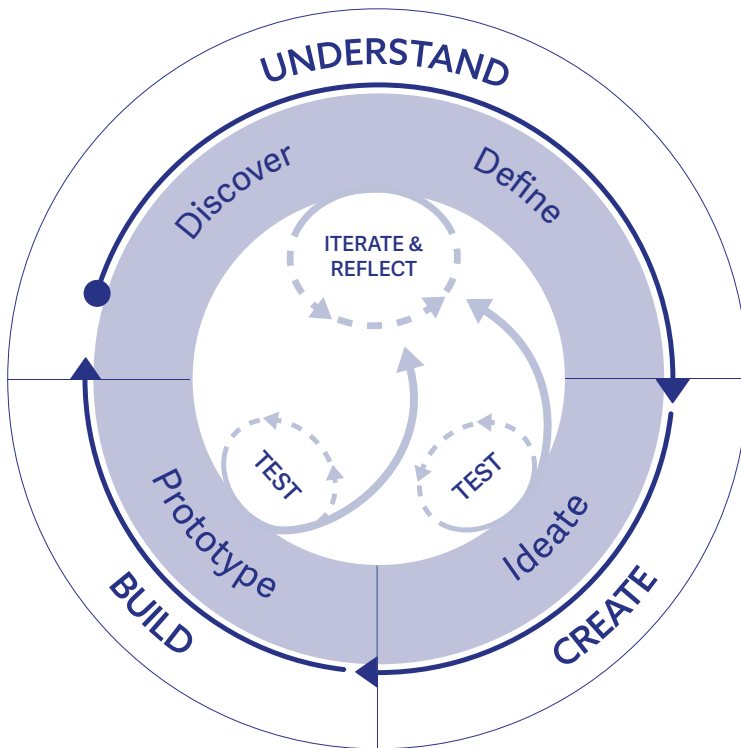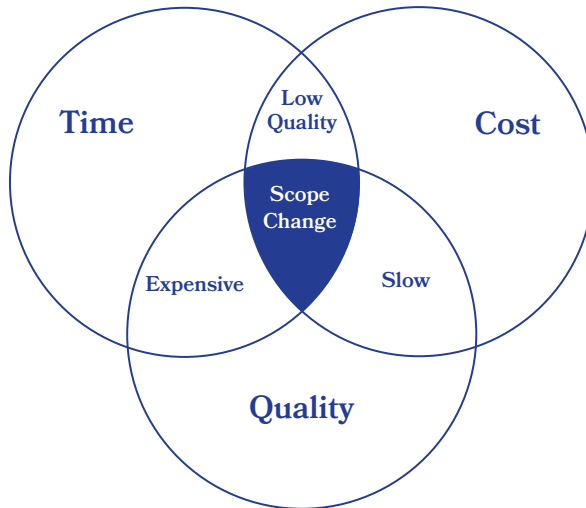
Scoping Actions

Different parts of your process require different methods. It's all about the right timing and context. With this easy model you can estimate the methods you should use with these questions:
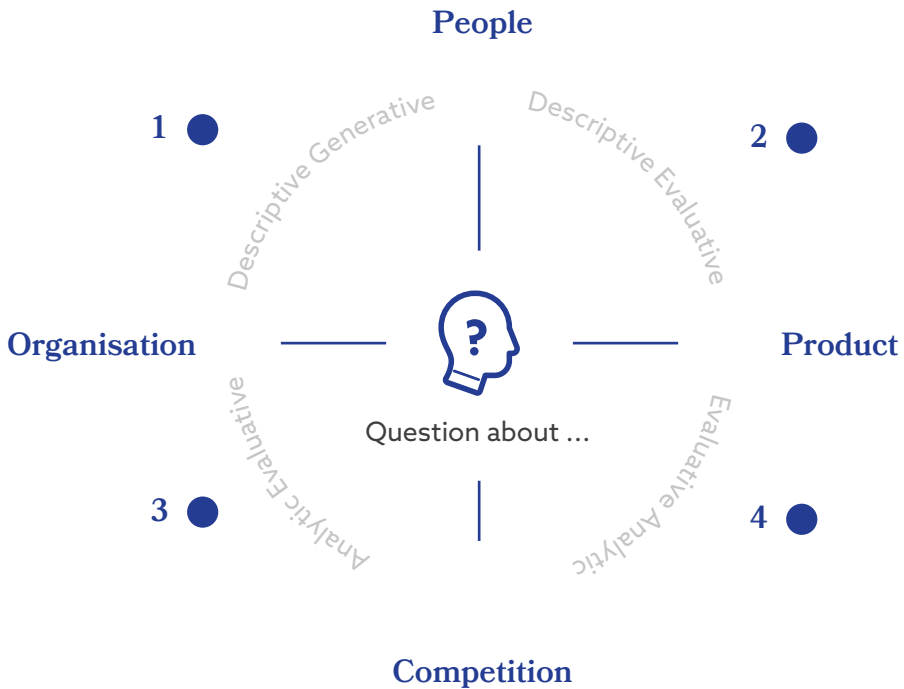
What do you want to do?
1. How good should the results be? (quality)
2. How fast do you want it done? (schedule)
3. How much may it cost? (cost)

The Process

How do you know which kind of data you need? Where should you begin? Mostly, you can start with two factors: the topic you are working on and the nature of your questions.

Erica Hall has provided us with a great guide for deciding which methods to use in her book »Just Enough Research«.

People

1 ●   *Descriptive Generative*   *Descriptive Evaluative*   2 ●

Organisation   ?   Product

Question about …

3 ●   *Analytic Evaluative*   *Evaluative Analytic*   4 ●

Competition

1. Interviews, Contextual Inquiry, Literature Review
2. Interviews, Usability Testing, A/B Testing
3. SWOT Analysis, Brand Audit
4. Usability Testing, Competitive Analysis, Heuristic Analysis

Understand - Understanding Leads to Insights

To start you project you must fully understand the current situation, discover dependencies and define the goal of your project. When you don't understand the problem, your solutions will only scratch the surface or will have no effect. That's why this phase is the longest and most intensive, so use the opportunity to gather as much data as you can and refine it for your team.

Tip: Consider checking the source and context of your data, be numerate and check your biases while you are building your data basis. See the chapter »Being Data Literate« for more details.

Examples of Data Sources - General Approach

Studies

Studies can be compiled on different topics and can include different methods such as statistics, surveys etc.

Data Types
Numbers & Statistics

Data Category
Quantitative

Scope

Cheap & Quick
Sometimes free or available for a small fee from independent companies / NGOs / Governments.

More Expensive & Good
Paid studies from research companies or organisations about a whole branch of an industry.

Example: pwc.com

Statistics

The collection, analysis, interpretation, presentation, and organization of data.

Data Types
Numbers & Statistics

Data Category
Quantitative

Scope

Cheap & Quick
Sometimes free or available for a small fee from independent companies / NGOs / Governments.

More Expensive & Good
Paid statistics from research companies or organisations with exposé and more prepared base on a whole topic.

Example: statista.com

Surveys

A questionnaire that the target audience can complete in different ways, mostly by phone

Data Types
Numbers & Statistics

Data Category
Quantitative (Sometimes a mix of both cat.)

Scope

Cheap & Quick
Sometimes free or available for a small fee from independent companies / NGOs / Governments.

Reports

Reports are mostly published by specified companies or organizations with focus on one topic

Data Types
Numbers & Statistics

Data Category
Quantitative (Sometimes a mix of both cat.)

Scope

Cheap & Quick
Sometimes free or available for a small fee from independent companies / NGOs / Governments.

More Expensive & Good
Paid reports from research companies or organisations about a whole branch of an industry or a specific topic.

Example: gfk.com

Government Data Sets

Data sets from different ministries from sectors such as state budget, traffic or environment.

Data Types
Numbers & Statistics

Data Category
Quantitative

Scope

Cheap & Quick
Most of the time Governments offer this resources for free. But sometimes there are harder to find.

Example: govdata.de

Examples of Data Sources - Specific Approach

Online Surveys

A questionnaire that the target audience can complete over the Internet.

Data Types
Numbers & Statistics

Data Category
Quantitative (Sometimes a mix of both cat.)

Scope

Cheap & Quick
Promoting a small survey with people you know or throw a company's channels

More Expensive & Good
Conducting detailed surveys in a pool of people recruited.

A/B Testing

Determining which of two alternatives is better received by the target audience.

Data Types
Numbers & Statistics

Data Category
Quantitative

Scope

Cheap & Quick
You can set up a low fidelity prototype and test it with a small amount of people from a paid pool.

More Expensive & Good
You can create two versions of a product/feature and compare them in a live setting of you current product/service

Example:
optimizely.com

Analytics Data

A special set of performance and behavioural data collected to analyse potential errors and potential for improvement.

Data Types
Numbers & Statistics

Data Category
Quantitative

Scope

Cheap & Quick
You can ask the marketing/performance department for more information.

More Expensive & Good
You can work with a data analyst to set up an analysis tool and analyse the data together for several months to find patterns.

Example: matomo.org

Customer Data

Data about customers which is stored within or processed by your company.

Data Types
Words, Images or Subjects
Numbers & Statistics

Data Category
Quantitative

Scope

Cheap & Quick
You can inform yourself about your company's customer data in every department

More Expensive & Good
You can involve different stakeholders and ask them to communicate their upscale customer data.

Interviews

Interviews allow you to probe attitudes, beliefs, desires, and experiences to get a deeper understanding of the people who are using your site/product/service.

Data Types
Words, Images or Subjects

Data Category
Qualitative

Scope

Cheap & Quick
Guerrilla approach: ask people you know, who could fit the target group profile, interview people in a coffee shop and provide free coffee or recruit inside your company. (To quantify your approach you can use remote platforms)

More Expensive & Good
Use a recruiting agency to specify your target group and pay the participants for their participation. (To quantify your approach you can use remote platforms)

Usability Testing

Usability testing refers to evaluating a product or service by testing it with representative people.

Data Types
Words, Images or Subjects

Data Category
Qualitative

Scope

Cheap & Quick
Guerrilla approach: ask people you know, who could fit the target group profile, interview people in a coffee shop and provide free coffee or recruit inside your company. (To quantify your approach you can use remote platforms)

More Expensive & Good
Use a recruiting agency to specify your target group and pay the participants for their participation. (To quantify your approach you can use remote platforms)

UX Benchmarking

Usually carried out in combination with the analysis of competitors. The potential competitors and UX focal points are analysed.

Data Types
Words, Images or Subjects

Competitor Analysis

Analysis of the strengths and weaknesses of current and potential competitors.

Data Category
Qualitative

Scope

Cheap & Quick
You can do it alone or ask a member of your product/design team.

More Expensive & Good
You can carry this out with a group of experts to combine different perspectives.

Heuristic Evaluation

In a heuristic evaluation experts review an interface or product and compare it against accepted usability principles.

Data Types
Words, Images or Subjects

Data Category
Qualitative

Scope

Cheap & Quick
You can do it alone or ask a member of your product/design team.

More Expensive & Good
You can carry this out with a group of experts to combine different perspectives.

Create -
Creation Ends in Ideas

After you have viewed and edited the aggregated data from the "Understand" phase and defined the goals of your project, it's all about putting the insight you have gained from this into concrete ideas. The Design Human Data Kit provides you with a lot of tools to ideate with your interdisciplinary team. You will notice that the Create and Prototype phases will merge seamlessly into one another. It is tempting to immerse yourself in the creation of prototypes. However, allow yourself and your team to discuss, discard and play out ideas. Create a system of comparing and testing your ideas, that may come from gut feeling, against your findings from the data.

Co-creation is a good way to integrate a physical representation of your findings. If people, your number one data source, are part of the process, there is an increased chance that your team will achieve a balanced result for each party.

Build –
Building Ends in Reality

You have come up with ideas which fit with your data basis. Now you can transform your concrete ideas into prototypes. These can be paper prototypes, simple click-prototypes with Wireframe screens or high fidelity design prototypes. As soon as you begin to test your ideas with relevant people from your target audience the better. Please bear in mind, to use both qualitative and qualitative methods.

Examples of Data Sources

Acceptance Test (lab)

User Acceptance Testing generally verifies that the deliverable meets the agreed upon requirements. (Usability Testing instead seeks to verify an implementation's approach works for the target group.)

Data Types
Words, Images or Subjects

Data Category
Qualitative & Quantitative

Scope

Cheap & Quick
Guerrilla Approach: Ask people you know, who could fit in the target group profile, Interview people in a coffee shop and provide free coffee or recruit inside your company.

More Expensive & Good
Use a recruiting agency to specify your target group and pay the participants for their appearing

Acceptance Test (online)

User Acceptance Testing generally verifies that the deliverable meets the agreed upon requirements. (Usability Testing instead seeks to verify an implementation's approach works for the target group.)

Data Types
Words, Images or Subjects
Numbers & Statistics

Data Category
Qualitative & Quantitative

Scope

Cheap & Quick
Online Testing platforms provide a simple recruiting to test your prototype for a small budget. The tests can be moderated or unmoderated.

More Expensive & Good
To quantify your results, you can use a recruiting agency to increase the number of people you test or recruit directly from the Testing platform with your target group criteria.

Online Surveys

A questionnaire that the target audience can complete over the Internet.

Data Types
Numbers & Statistics

Data Category
Quantitative (Sometimes a mix of both cat.)

Scope

Cheap & Quick
Promoting a small survey with people you know or throw a company's channels

More Expensive & Good
Conducting detailed surveys in a pool of people recruited.

Interviews

Interviews allow you to probe attitudes, beliefs, desires, and experiences to get a deeper understanding of the people who are visiting your site/product/service.

Data Types
Words, Images or Subjects

Data Category
Qualitative

Scope

Cheap & Quick
Guerrilla Approach: Ask people you know, who could fit in the target group profile, Interview people in a coffee shop and provide free coffee or recruit inside your company.

More Expensive & Good
Use a recruiting agency to specify your target group and pay the participants for their appearing.

Crowd Testing

Crowd Testing helps you to find errors and blind spots in User flows in the developing process.

Data Types
Words, Images or Subjects

Data Category
Qualitative

Scope

Cheap & Quick
You are recruiting a small beta group from existing customers or you are using a vendor with a small package for a smaller project.

Example: test.io

More Expensive & Good
To perform crowd testing regularly in the product development process us a larger provider with a subscription.

Example:.applause.com

A/B Testing

Determining which of two alternatives is better received by the target audience.

Data Types
Words, Images or Subjects

Data Category
Qualitative

Scope

Cheap & Quick
You can set up a low fidelity prototype and test it with a small amount of people from a paid pool.

More Expensive & Good
You can create two versions of a product/feature and compare them in a live setting of you current product/service

Example:
optimizely.com

Data: What's Next?

The book has given you an introduction into the world of data. Relationships between data and design dependencies and effects of data use on people are shown. The book and the set are intended as a basis for discussion and as a way to promote new ideas for balanced data concepts. The intuition-lead and interdisciplinary way that designers work is an advantage in a world in which data is becoming omnipresent. We play an increasingly important role in the design processes of products, services and companies. We are able to make the data accessible to other people, we mediate between people of other disciplines and are able to elicit the bigger picture from hard facts with our intuition. If we use this same approach to deal with human data, our work will be extended into a new dimension. Designers should lead the way in terms of the ethical and responsible use of data and as soon as we start doing this, the smoother the transition to data-awareness will be. We should all be lead by intuition, informed by data and driven by empathy.

You can find more information like articles, reports, book recommendations to this topic at designhumandata.net