

# The Synergy of Design and Data

Enhancing the design process with  
quantitative insights

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# Introduction

In today's fast-paced world, applying data to design is opening up exciting new frontiers. This synergy is doing more than just improving the speed and precision of our work - it's altering how we process and interpret information. This whitepaper explores the significant benefits of integrating data insights into design.

The goal of design is generally to create products and services that resonate with users, address their needs, and evolve to meet changing demands. Traditionally, qualitative information informs the design process. User interviews and observations, for example, are a foundational tool for understanding user behavior. But there is much more that can be learned from the inclusion of data and numerical insights within the design process.

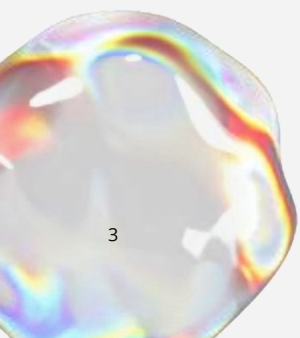
To illustrate this, let's look at the example of Airbnb. One specific enhancement resulting from user analytics on customer data was the redesign of the search experience on the platform. By analyzing data of user behavior on the website, Airbnb noticed that users frequently employed specific filters when searching for listings. Qualitative feedback that followed revealed that users often felt overwhelmed by the number of options available.

In response, Airbnb simplified the search interface, prioritizing popular filters and presenting them more intuitively. The redesign led to increased user satisfaction and higher booking rates.

This example showcases how combining quantitative and qualitative data in the design process enriches design outcomes.

***In this whitepaper, we elaborate on the following three benefits of using data in the design process, explaining why data-driven design results in better products, services and experiences:***

1. Validating assumptions in the problem space
2. Finding new opportunity spaces
3. Measuring and monitoring design effectiveness



# Validating the problem space

In the world of design, the difference between creating a good solution and a great one often depends on the designers' success in accurately defining the needs of the end user and what is currently withholding them from fulfilling these needs. Designers often call this the 'problem space', where the users' needs and business goals are researched to determine the direction for the design process.

To navigate through the problem space, a designer can enrich qualitative research with quantitative insights. The start of a design process is often fuzzy and uncertain. To help specify which challenge to focus on, designers are generally equipped with an extensive set of (mostly) qualitative research tools. Qualitative research is very helpful in capturing the emotions, motivations and behaviors of users. It often provides rich insights that help designers empathize with users. The strengths of qualitative research are its depth, nuance, and ability to explore complex interactions in a way that numbers alone cannot capture.

However, findings from qualitative studies are not always generalizable to the broader population. The target group involved in a study may hold niche preferences or exhibit behaviors that do not reflect the wider user base. Additionally, qualitative research is susceptible to the biases of the designer. A designer's preconceived notions and beliefs can color the interpretation of research results, with the risk that the designer incorporates too much of their personal perspective into the solution space of the design process.

These risks can be mitigated by harnessing quantitative data. Quantitative research provides objective, numerical data that can validate or challenge the insights gathered from qualitative studies. By employing statistical methods and analyzing large sample sizes, designers can identify patterns and ensure that their findings are statistically significant and representative for the entire population. With an understanding of the magnitude and frequency of issues, designers can focus on the design challenge that will have the greatest impact.



# Finding new opportunity spaces

The synergy of quantitative and qualitative data can uncover hidden opportunities in design. It can provide a holistic view that is greater than the sum of its parts, leading to a comprehensive, evidence-based framework for designing solutions that are both impactful and resonate with users.

1.

## **UNEXPECTED CORRELATIONS**

Quantitative data helps reveal trends and segmentations that can highlight opportunity spaces, while qualitative insights can translate these opportunities into valuable design propositions and solutions. Sometimes, qualitative insights reveal trends that weren't apparent in the quantitative data, and they may even seem to contradict each other.

For instance, while quantitative data might indicate that a feature is widely used, qualitative data might reveal that it's not particularly loved or deemed essential. Equally, quantitative segmentation might show one segment to be small, while qualitative insights might reveal that this segment, although small, is the key to success. This kind of insight can open up opportunities to redesign or rethink elements to better align with users.

2.

## **IDENTIFYING EMOTIONAL AND BEHAVIORAL DRIVERS**

Qualitative insights are essential to understand why users are behaving in a certain way (the emotional and behavioral drivers). Therefore, qualitative insights often lead when uncovering opportunity spaces that will emotionally resonate or motivate users. However, quantitative insights can be of value here as well. For example, trend data can help predict which design direction is most likely to be successful.

3.

## **FILLING THE BLANKS**

Quantitative data can indicate gaps or pains within user engagement or experience.

Qualitative research can help to interpret these voids. Rather than merely identifying underperforming areas, a combined approach can help designers to understand what users might need or want in places where current offerings fall short.

# Sustainable housing

Deloitte research

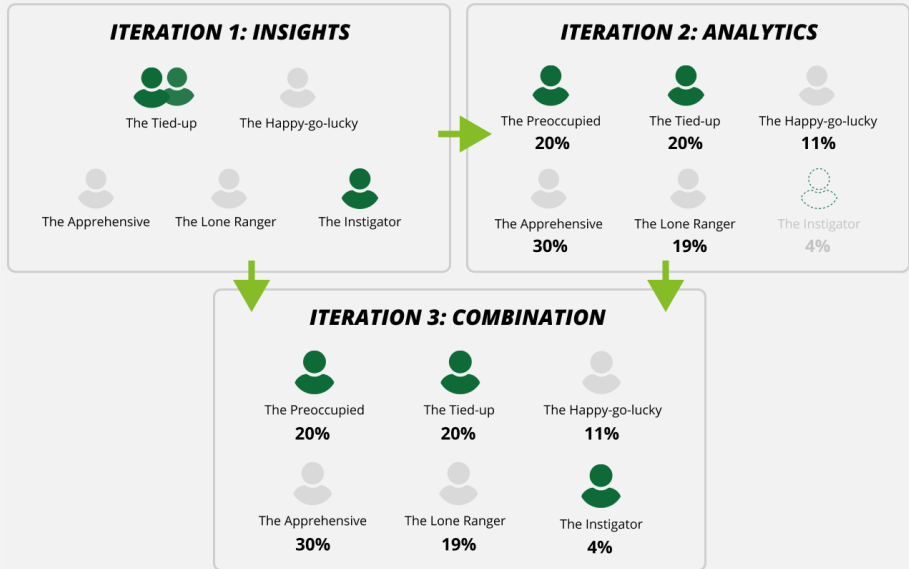
Deloitte conducted research into how homeowners view sustainable home renovations. By integrating both quantitative and qualitative methods, the study revealed deeper insights and uncovered opportunities for innovation that would have remained hidden using a narrower approach.

This multidisciplinary study, blending insights from qualitative interviews and quantitative data analysis, uncovered valuable insights into Dutch homeowners' attitudes toward sustainable home renovations.

The study commenced with qualitative interviews, identifying five distinct homeowner personas, each with unique challenges and motivations for sustainability. These insights informed the development of a comprehensive survey, enabling the analytics team to validate and measure the prevalence of these personas across a broader population.

The analytics team found that one of the pre-defined persona ("The Tied-up") consisted of two distinct personas (see graphic), adding valuable nuance to the findings. Conversely, the qualitative insights revealed that another persona ("The Instigator"), which had been found to be statistically negligible, in fact played an outsized role in influencing others. This group might have been overlooked through quantitative analysis alone.

This study underscores the necessity of a multidisciplinary approach to avoid missing significant insights and opportunities. By integrating both qualitative and quantitative methods, the research delivered a comprehensive understanding and a more strategic approach to promoting sustainable home renovations. Embracing such a multifaceted strategy ensures that complex challenges are addressed with depth, precision, and actionable insights.



A representation of the outcomes after each methodological iteration analysis, identifying different persona groups in the sustainable housing research: a discovery of a unique persona by the analytics analysis, and the significance of a statistically negligible persona by the insights team.

# Measuring and monitoring design effectiveness

The two previous sections have described why and how the design process can benefit from using quantitative methods to scope the project and validate assumptions. They also outline how data can play a part in finding new opportunity spaces to fulfill end users' needs. Going through the design process in this way can enable the creation of a new product or service with significant added value for the intended end user. It is important to also measure and monitor the effectiveness of the resulting design for two reasons: firstly, to continuously improve the product or service, and secondly, to measure what value the new product or service brings to end users.

To effectively monitor the user experience, it is essential to establish a continuous improvement cycle, such as a PDCA cycle (plan, do check, act) – see graphic. Ideally, data experts and designers will work together on this process. Data experts specialize in collecting and analyzing quantitative data, which designers can then use to identify areas for improvement and refine products or services based on user feedback and evolving trends. Data helps to detect potential issues early, allowing them to be addressed before they escalate into significant problems.

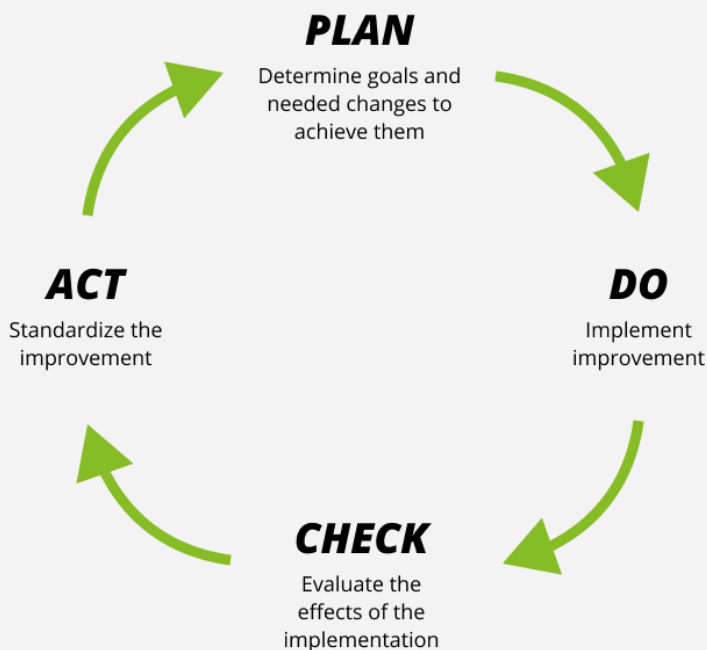
Consequently, a product or service is never truly 'finished'; there is always room for enhancement.

Additionally, data can simplify and accelerate decision-making processes by providing straightforward facts about what works and what doesn't. No longer reliant on potentially conflicting opinions, designers will be empowered to make decisions that best serve the users.

Measuring the value of design can be challenging as many benefits, such as enhancing user satisfaction or fostering emotional connections, can be abstract and difficult to quantify. Collaborating with data experts can help designers to assess the tangible impact of design on measurable outcomes, providing designers and stakeholders with solid evidence for making informed strategic choices.

Some examples of quantitative methods include A/B testing, analyzing large volumes of data from customer interactions or questionnaires, and examining web data. The resulting insights can aid in calculating the return on investment (ROI) of design.

Calculating the ROI can provide persuasive proof of the value of investing in design to the organizational leadership. Demonstrating a positive ROI can be a compelling rationale for further resource allocation to design functions, nurturing a corporate culture that regards design as a crucial business lever.



Example of a continuous improvement cycle

# Measuring design effects

## Public sector case

This is an anonymized case to show how service designers and data experts work together at a public sector organization to measure the effects of design on the citizen.

At this large public sector organization, a service design team was seeking to define the optimal mix of messages and channels for communications with citizens. This organization made use of a wide array of media, including letters, leaflets, inbound and outbound telephone contact, portals, chat, videocalls and SMS - a true 'omni-channel' mix of channels and media. The service design team was also responsible for measuring the effects of communication and interaction.

The diverse media communications created a wealth of data to analyze. Quantitative data included the logistical data on the number on letters per project, and large volume data from the customer contact center and the online channels. On top of this, qualitative insights were obtained through a large number of dedicated surveys to measure customer/citizen satisfaction. The analysis of all this data, discovering patterns and correlations, was a labor-intensive process.

To make the analysis and evaluation process a lot more efficient, the design team collaborated with data experts in the organization to create a dashboard which presented clear insights. These insights were used to define the optimal customer journey and possible gaps in the current service offering for different customer/citizen segments. This directly influenced the further improvement of the communication strategy.

Personalized service	Case/case handler
	Service desk
	Video calling
Customer service	Calling
	Chat with employee
	Webcare
Self-service	Web
	App
	Social media
	Automated chat
	Personal website/app
Inform	Letters
	Flyers
	Decisions
	Open website/app

An example of an omni-channel mix of channels and media that generate a huge amount of data on the effects of communication and interaction.

“Look for the data experts in your organization and involve them measuring effects of communication and interaction “

**Service design lead**

Public sector organization



# Conclusion

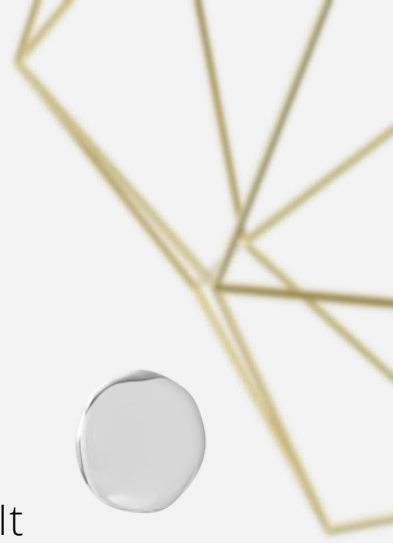
This whitepaper describes the transformative impact of a data-driven approach for designers. It explores the advantages of integrating quantitative insights into the design process, transcending traditional reliance on mainly qualitative methods.

The synergy of data and design empowers practitioners to validate their hypotheses, define common problems, and uncover new spaces for innovation with greater accuracy and confidence, leading to more effective and scalable solutions. A data-driven approach also enables continuous iteration and optimization of design work, ensuring that products and services remain aligned with user preferences and market dynamics. It supports quick decision-making, allowing design to be an agile and responsive process.

Furthermore, quantitative measurement of the effectiveness of design choices can provide clear indicators of success and demonstrate the value of design investments to stakeholders.

The current availability of artificial intelligence tools is making it easier than ever for designers to use data in their work, extending their traditional capabilities. AI stimulates new ways for experts in different fields to work together beyond their usual boundaries, allowing for smoother and faster collaboration.

All in all, data and design form a powerful synergy – now boosted by accessible AI tools – that enables designers to deliver solutions that truly make an impact.



# Authors



**Niels Corsten**

Sr. Lead Service Design &  
CX Transformation

[ncorsten@deloitte.nl](mailto:ncorsten@deloitte.nl)



**Joost van Wattingen**

Sr. Manager AI & Data

[jvanwattingen@deloitte.nl](mailto:jvanwattingen@deloitte.nl)



**Emma de Zeeuw**

Service Designer

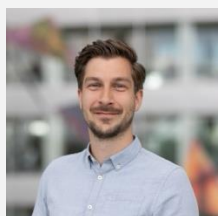
[emdezeeuw@deloitte.nl](mailto:emdezeeuw@deloitte.nl)



**Anniek de Bock**

Service Designer

[adebock@deloitte.nl](mailto:adebock@deloitte.nl)



**Robin Gringhuis**

Information Designer

[rgringhuis@deloitte.nl](mailto:rgringhuis@deloitte.nl)



**Loek Dekker**

Sr. Service Designer

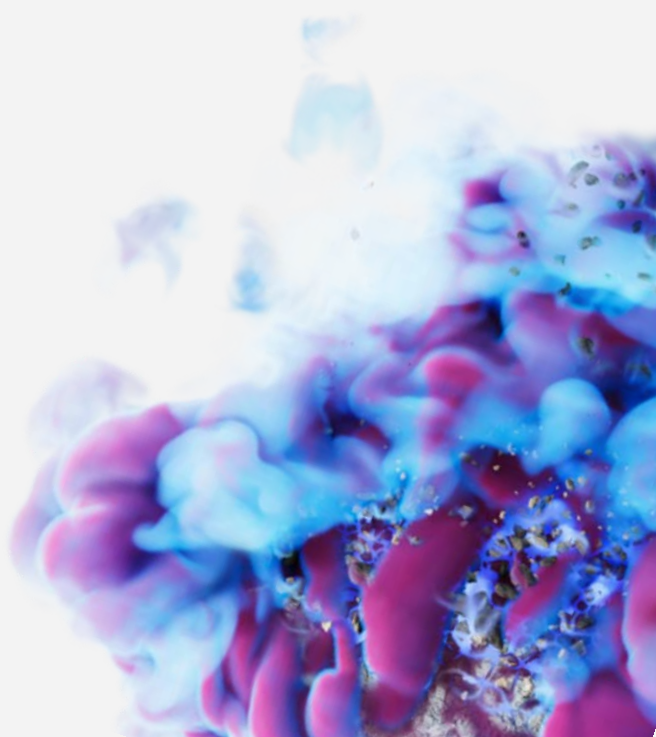
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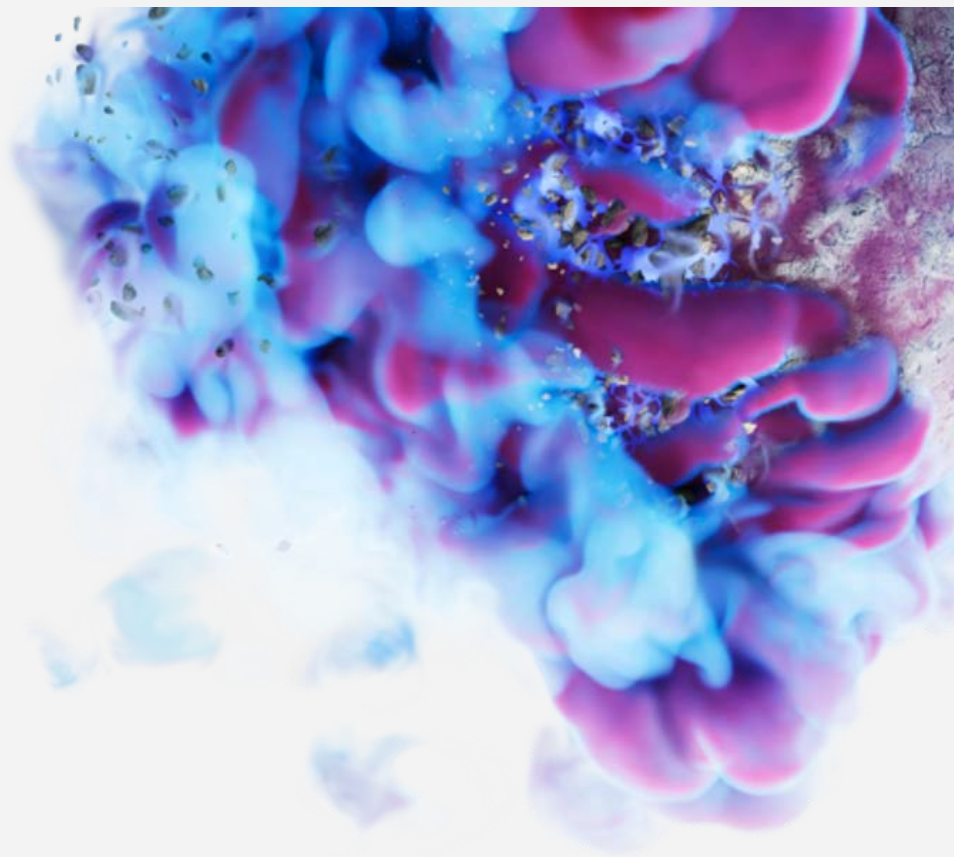


**Jim van der Voort**

Consultant AI & Data

[jivandervoort@deloitte.nl](mailto:jivandervoort@deloitte.nl)





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