A Discussion Kitchen for “All” or “None at All”*

Challenges in Datasets to (Re)Center People with Reduced Functionality in Design Work

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ABSTRACT

Kitchen design is a classic type of design work where customers can become part of the design process and customize their kitchen to their personal needs. With the transition to 3D-modeling, design work is no longer a practice where only the interior architect can be the designer. This type of democratization is perhaps one of the practices where design is no longer for people, or with people but actually it is reasonable to say that kitchen design has moved into an era where it is *by* people at large. However, 3D-models are restricted to the physical building structure and are not immediately related to other kinds of needs. In this short piece we propose that datasets are transforming design work and call for more attention to how datasets that can bring 3D-modeling of distributed kitchen design to its full potential require special attention to the underlying datasets and what it requires to enable design by people that “falls out” of the average.

CCS CONCEPTS

• Human-Centered Computing • Interaction design • Scenario-based design

KEYWORDS

Future of work, Data, Data foundation, Design Work, Marginalized Groups, Data Tracking.

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1 Designing a Kitchen with Data

Data-driven design is increasingly a mundane practice in design work: In kitchen design Ikea and other global players have made a business of 3D-design tools, which has been developed for the construction industry [5, 6]. Democratizing technologies and “crafting” is an important field of research for understanding the challenges when people become designers. Lindtner et al. discuss design and intervention in the age of “No Alternative” falling into specific cultural understanding of a problem [3] and further expand on these ideas in studies on how whole societies are becoming prototype nations [4]. Distributed work is part and parcel of this transformation of design work: not only can people become designers of their own kitchen but datasets on particular needs may be accumulated as well.

In the context we write in, people can design a kitchen for their particular needs. People in this sense are typically the average person that can take advantage of preconfigured kitchen modules. In data science the average is the expected value of a random variable. This presents a general tendency, disregarding smaller clusters or fluctuations in the dataset. I.e. not representative of minoritized populations.

An important debate in HCI and related fields of research is thus this average “figure” or customer. Bertelsen et al. raise question research of the very particular [1], which is increasingly a focus for researchers. After all, what difference does it make to develop things together with the late Stephen Hawking, they argue. However, we learn from the case of kitchen design that such mundane practices could span the “particular” and average, or what Bertelsen et al. call general.

Accordingly, following this line of argument, we propose principles on how to work towards a **data foundation** that decenters the “average” and re-centers customers with reduced functionality (i.e. people relying on a wheelchair in their daily life) may abstract reality into a form where results can actually be fed back to actual design questions in the real world (following [1, 2]).

2 Data Work by People that are All "Particular"?

The "particular" of kitchen design starts with the data foundation, we argue. However, 3D-modelling as a tool for design work is not straightforward, we learn from prior studies (i.e. [5,6]). Stykka's vision is to use data about consumer kitchen choices to suggest and create the optimal kitchen combination for both the average person - and persons with particular needs.

The data available at Stykka is parametric 3D design data regarding kitchen interior and user feedback on existing products. Logical combinations of the kitchen furniture ensure the average needs of a customer is upheld. These assumptions in combination with a small sample size prevents the Stykka logic from taking people of particular needs into account at the moment.

In this new model for kitchen design the relationship between the customer and the company presumes that customers contribute to future customers designs. The sustainability of this new way of working distributed and remote, in a closer relationship with the customer, depends greatly on the quality of the data and how it is managed. A question for future research is how we can translate data architecture and ownership, including the associated tasks of cleaning data, interpreting data and maintaining the data infrastructure when the customer becomes a key provider of such data.

In the end, a critical question for shifting the balance of work to become more distributed is how design by people place an extra burden on people doing the non-paid work of such a process. Especially, as we look into the particular needs of people with reduced functionality, we want to understand such dynamics.

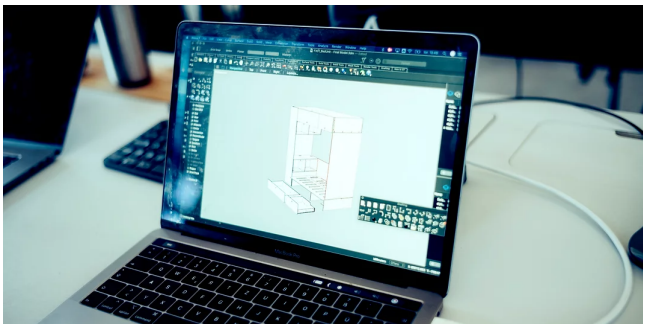

Figure 1: **Stykka's interiors are linked to an online database of customers' input data on kitchen designs .**

3 Prototyping a Data Foundation for "Work of the Future" with Customers

To underpin theory with proof, we will facilitate a prototyping process with key stakeholders including representatives from Stykka, segments of users with reduced functionality:

1. **Data practice:** Craft data flow diagram of Stykka's current data practices.
2. **Interoperability of data:** Ensure that data from different sources fit together through ER diagrams.
3. **Constraints in the database:** Describe table relations of Stykka's SQL database to highlight challenges in the database, if any.
4. **Data language:** Conceptualize Stykka's data definitions and ownership across the organization.
5. **Sustainable data infrastructure:** Use AI on the cleansed dataset to suggest kitchen configurations together with average customers.
6. **De-centering the average:** for smaller customer segments (the particular), which does not generate enough data
7. **Feedback loop**: write up learnings and processes as the bedrock for next stage research.

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