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Contextual Design: Experience in Real Life

Karen Holtzblatt
InContext Enterprises, Harvard (USA)

Contextual Design is a state-of-the-art approach to designing products directly from an understanding of how the customer works.

Dr. Holtzblatt's talk describes the key steps in the Contextual Design process:

- gathering initial data from customers to find out what to build,
- developing a single picture of a market or customer population,
- responding with an innovative design,
- structuring the system to meet the expectations of users, and
- testing the system structure through rapid iteration with users.

Each point in the process will be illustrated with examples drawn from Dr. Holtzblatt's wide experience coaching and running development teams across the industry and world. She will describe each technique and how it addresses problems of development in organizations. Using examples from real people in real organizations struggling with real design problems she will share her experience.

Following is a short description of the process.

Contextual Design

Great product ideas come from a marriage of the detailed understanding of a customer need with the in-depth understanding of technology. The best product designs happen when the product's designers are involved in collecting and interpreting customer data and appreciate what real people need. Contextual Design gives designers the tools to do just that.

Contextual Design starts with the recognition that any system embodies a way of working. A system's function and structure forces particular strategies, language, and work flow on its users. Successful systems offer a way of working that customers want to adopt. Contextual Design is a method which helps a cross-functional team come to agreement on what their customers need and how to design a system for them.

Contextual Inquiry

The first problem for design is to understand the customers: their needs, their desires, their approach to the work. Yet the work has become so habitual to the people who do it that they often have difficulty articulating exactly what they do and why they do it.

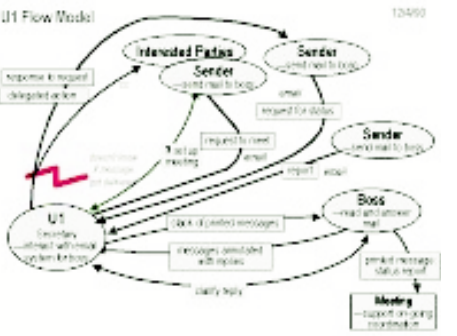
Contextual inquiry is an explicit step for understanding who the customers really are and how they work on a day-to-day basis. The design team conducts one-on-one field interviews with customers in their workplace to discover what matters in the work. A contextual interviewer observes users as they work and inquires into the users' actions as they unfold to understand their motivations and strategy. The interviewer and user, through discussion, develop a shared interpretation of the work.

Team interpretation sessions bring a cross-functional team together to hear the whole story of an interview and capture the insights and learning relevant to their design problem. An interpre-

tation session lets everyone on the team bring their unique perspective to the data, sharing design, marketing, and business implications. Through these discussions, the team captures issues, draws work models, and develops a shared view of the customer whose data is being interpreted and their needs.

„When I was coding I was behind a mirror... but when I sat together with the user in front of the system, I felt like I was looking through the mirror and becoming aware that there was a human being on the other side.“—Contextual Design user

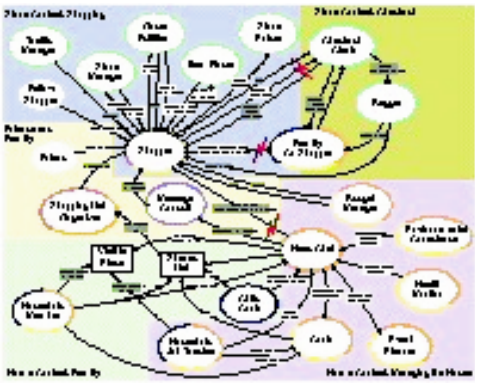
Work Modeling



People’s work is complex and full of detail. It’s also intangible—there’s no good way to write down or talk about work practice. Design teams seldom have the critical skill of seeing the structure of work done by others, looking past the surface detail to see the intents, strategies, and motivations that control how work is done.

Work models capture the work of individuals and organizations in diagrams. Five different models provide five perspectives on how work is done: the *flow model* captures communication and coordination, the *cultural model* captures culture and policy, the *sequence model* shows the detailed steps performed to accomplish a task, the *physical model* shows the physical environment as it supports the work, and the *artifact model* shows how artifacts are used and structured in doing the work.

Consolidation



Systems are seldom designed for a single customer. But designing for a whole *customer population*—the market, department, or organization that will use the system—depends on seeing the common aspects of the work different people do.

Consolidation brings data from individual customer interviews together so the team can see common pattern and structure without losing individual variation. The *affinity diagram* brings together issues and insights across all customers into a wall-sized, hierarchical diagram to reveal the scope of the problem. *Consolidated work models* bring together each dif-

ferent type of work model separately, to reveal common strategies and intents while retaining and organizing individual differences.

Together, the affinity diagram and consolidated work models produce a single picture of the customer population a design will address. They give the team a focus for the design conversation, showing how the work hangs together rather than breaking it up in lists. They show what matters in the work and guide the structuring of a coherent response, including system focus and features, business actions, and delivery mechanisms.

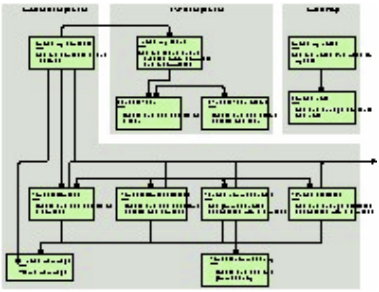
Work Redesign

Any successful system improves its users' work practice. A design team's challenge is to invent and structure a system which will improve customers' work in ways they care about.

Work redesign uses the consolidated data to drive conversations about how to improve the work by using technology to support the new work practice. This focuses the conversation on how technology helps people get their jobs done, rather than on what could be done with technology without considering the impact on people's real lives.

The redesigned work practice is captured in a *vision*, a story of how customers will do their work in the new world we invent. A vision includes the system, its delivery, and support structures to make the new work practice successful. The team develops the details of the vision in *storyboards*, 'freeze-frame' sketches capturing scenarios of how people will work with the new system.

User Environment Design



The new system must have the appropriate function and structure to support a natural flow of work through the system. Just as architects draw floor plans to see the structure and flow of a house, designers need to see the 'floor plan' of their new system—hidden behind user interface drawings, implemented by an object model, and responding to the customer work. This 'floor plan' is typically not made explicit in the design process.

The *User Environment Design* captures the floor plan of the new system. It shows each part of the system, how it supports the user's work, exactly what function is available in that part, and how the user gets to and from other parts of the system—without tying this structure to any particular user interface.

With an explicit the User Environment design, a team can make sure the structure is right for the user, plan how to roll out new features in a series of releases, and manage the work of the project across engineering teams. Using a diagram which focuses on keeping the system coherent for the user counterbalances the other forces that would sacrifice coherence for ease of implementation or delivery

Mockup and test

Testing is an important part of any systems development. It's generally accepted that the sooner problems are found, the less it costs to fix them. So it's important to test and iterate a design early, before anyone gets invested in the design and before spending time writing code. And the simpler a testing process you have, the more you can do multiple iterations to work out the detailed design with your users.

Paper prototyping develops rough mockups of the system using Post-its to represent windows, dialog boxes, buttons, and menus. The design team tests these prototypes with users in their workplace, replaying real work events in the proposed system. When the user discovers problems, they and the designers redesign the prototype together to fit their needs.

Rough paper prototypes of the system design test the structure of a User Environment Design and initial user interface ideas before anything is committed to code. If you've built a User Environment design derived from customer data, your base structure should be good and you'll quickly be able to focus on the UI. Otherwise, you'll spend longer working out the base structure in paper.

Paper prototypes support continuous iteration of the new system, keeping it true to the user needs. Refining the design with users gives designers a customer-centered way to resolve disagreements and work out the next layer of requirements. The team uses several paper prototype sessions to improve the system and drive detailed user interface design.

The complete methode is described in:

Beyer, H.; Holtzblatt, K. (1998): Contextual Design. Defining Customer-Systems. San Francisco: Morgen Kaufmann

Adressen der Autoren

Karen Holtzblatt
President
InContext Enterprises, Inc.
249 Ayer Rd, Suite 304
Harvard, MA 01451-1133
USA
karen@incent.com
www.incent.com