Introduction

This handbook is a how-to companion to the main Contextual Design book, *Contextual Design: Defining Customer-Centered Systems.* Over the years, we at InContext have worked on many projects of many types, with many teams in many different organizations. Contextual Design (CD), our customer-centered design process, has been used in many ways depending on the needs of the project. Contextual Design often has been called a scaffolding for user-centered front-end design—techniques can be used or skipped and different techniques can be added.

*Rapid Contextual Design* is a guide for practitioners of the most frequently used CD techniques. Like any new process adoption, certain techniques are adopted first and others come later. This handbook focuses on the core Contextual Design techniques that most easily drive customer data into the corporate design process. So, you should be able to use and adapt these techniques to your particular situation.

To help you understand how to use CD techniques on your projects, *Rapid Contextual Design* contains step-by-step instructions of how to use each technique, real examples of user data from our clients’ and our own projects, schedules, and tips for using the process. We also discuss many of the issues that team members have raised over the years. And because some of you are integrating CD with other techniques like personas, Agile or Extreme Programming (XP), and use case generation, we include a discussion of how CD connects to these methods throughout this handbook.
Over the years teams have asked us, “Why can't we use a tool for Contextual Design?” Well, now you can—CDTools™ is InContext's software tool designed specifically to help you organize, analyze, track, and share user data. Because we have designed many other software tools by studying the people using them, we know the advantages and pitfalls of providing tool support for what was previously a paper process. So, in *Rapid Contextual Design* we highlight where and how to use CDTools within the context of the design process. And of course we designed CDTools with Contextual Design! We hope that these discussions will help you plan tool use into your own project process.

Finally, although *Rapid Contextual Design* can be used on its own, for a deeper discussion of the CD method and the philosophy of Contextual Design refer to the original book, *Contextual Design: Defining Customer-Centered Systems*. Throughout this handbook, we reference the appropriate sections of the main Contextual Design book. Because *Rapid Contextual Design* is a practical guide to the daily practice of Contextual Design, we spend little time on the *whys* of the process, and instead concentrate on the *hows*. And if you want to understand all the CD techniques, go back to the main text.

**What steps of Contextual Design are covered in Rapid Contextual Design?**

*Rapid Contextual Design* will take you from the start of a CD project all the way through to the finished design, addressing different project types and organizational needs. We cover defining the project scope, deciding on the number and type of interviews, and setting up interviews. We provide tips on conducting the interviews and running the interpretation session afterward. Once the data is gathered and interpreted, we guide you through the affinity building process and consolidating sequence models. Finally, we help you with visioning, storyboarding, and testing your system with paper mock-ups. Throughout we help you understand how to get a quality result from your variant of the CD process.

Depending on the type of Rapid CD project you choose, you may use several or all of the processes covered in *Rapid Contextual Design*. Chapter 2 covers planning your project and picking the type of Rapid CD process appropriate for your project.

An overview of the techniques in the full Contextual Design process, along with what we are covering in this handbook, follows. Throughout *Rapid Contextual Design* we will reference the more extensive discussions of techniques found in our original book on Contextual Design.

**Contextual Inquiry.** Field interviews are conducted with users in their workplaces while they work, observing and inquiring into the structure of the users’ own work practice. This ensures that the team captures the real business practice and daily activities of the people the system is to support, not just the self-reported practice or official policies.

We cover setting up field interviews in Chapter 3, and how to run a field interview in Chapter 4.

**Interpretation sessions and work modeling.** Team discussions are used to retell the events of the interview, key points (affinity notes) are captured, and models represent-
ing the user’s work practice are drawn. Five models provide different perspectives on how work is done: the flow model captures communication and coordination and the roles people play, the cultural model captures culture and policy, the sequence model shows the detailed steps performed to accomplish a task (task analysis), 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.

This disciplined, detailed debriefing allows the team to share the findings, build a common understanding of the user, and capture all the data relevant to the project in a form that will characterize the population to be supported and drive the resulting design.

We cover interpretation sessions in Chapter 5. The work models recommended for Rapid CD, primarily the sequence model, are covered in Chapter 6.

Model consolidation and affinity diagram building. The data from individual users is consolidated to show a larger picture of the work of the targeted population. The notes from the interpretation sessions of all users are brought together into an affinity diagram, a hierarchical representation of the issues labeled to reflect user needs. Work models are consolidated, showing the common work patterns and strategies across all users. The sequence model, the key model for Rapid CD, shows the tasks that the system will support. The consolidated sequence model is equivalent to a task analysis or the “as-is” use case in process modeling.

Sequence consolidation is covered in Chapter 7, and affinity diagramming is covered in Chapter 8.

Personas. In addition to the basic Contextual Design techniques, in Chapter 9 we discuss how to use contextual data to build personas, popularized by Alan Cooper. A persona describes typical users of the proposed system as though they were real people. Personas help the team communicate the needs of the users by bringing them to life. Good personas are built from rich contextual data. When a persona is based on field data collected from many users, it’s much richer and more complete than a description of any actual real user could be.

Visioning. Together, the team reviews the consolidated data by “walking” the data, sharing the personas if they were created and capturing key issues and hot ideas. This stimulates the team to start thinking broadly. After the “data walk” the team runs a visioning session to invent how the system will streamline and transform the work users do by applying technology. The vision is captured as a hand-drawn sketch on flipchart paper. This vision represents the big picture of what the system could do to address the full work practice. Subsequently, it can be broken down into coherent subsets to be implemented over a series of releases as may be required in a Rapid CD process. Alternatively, in a smaller project the team simply may brainstorm solutions.

We cover the data walk in Chapter 10 and the visioning process in Chapter 11.

Storyboarding. The vision guides the detailed redesign of user work tasks, which is fleshed out in more detail using pictures and text in a series of hand-drawn cells. A
storyboard includes manual practices, initial user interface (UI) concepts, business rules, and automation assumptions. Storyboarding is equivalent to future scenarios, high-level use cases representing the “to-be” state of the work process, and becomes the basis for user stories in XP. Storyboarding is covered in Chapter 12.

**User Environment Design (UED).** A single representation of the system that shows all functions and how they are organized into coherent places in the system to support user intent. The UED is built from the storyboards. This ensures that a large system is coherent and fits the work. It provides a basis for prioritization and rational segmentation of the system. The UED is a customer-centered way of representing the system requirements.

*Rapid Contextual Design* does not include a discussion of the UED. Companies often have their own standards for recording requirements that will take the place of the UED in a Rapid CD process. So to speed up the process, and because the UED is most essential for large system design, we do not cover the UED—return to the original Contextual Design book for a discussion of this technique.

**Paper prototypes and mock-up interviews.** User interfaces are designed on paper and tested with the system’s actual users, first in rough form and then with more detail. This ensures that the basic system function and structure work for the users, and that the basic UI concept is sound. After several iterations on paper you are ready for final interaction and visual design and then can begin running prototype testing.

We introduce the primary concepts of paper prototyping in Chapter 13, and explain how to interpret the mock-up data in Chapter 14. This process has caught on and is covered in many other publications as well.

**What is rapid about Rapid CD?**

Time has become a driving force in systems design. Today teams and companies want to include users in their design processes. But how can they do this without adding significant time to the process? Organizations have their existing methodologies and practices—how can user-centered design techniques be included within these processes? Opposition to bringing users into the center of the design process still exists. Surveys and focus groups are deemed to be enough for the voice of the customer. Complaints about increased time and resources for including user data in a real way abound. But the drive for designing products and systems with user data is moving to the mainstream of the development process.

One goal of *Rapid Contextual Design* is to remove the arguments against getting customer data into a development process. In our experience time is less about overall clock-time and more about how user data fits into the existing habits, processes, job descriptions, and schedules of a company. So “rapid” doesn’t mainly mean “Do everything in CD but do it shorter and faster.” Rather, it means:

- Do I have to do all those steps? What can I skip? When can I skip it?
- How does CD fit with my existing design process? Can’t I use CD techniques to get customer data and then use the steps I’m accustomed to using?
Rapid Contextual Design

I have only two people on the team, can I still do it?

What can I do in a few weeks?

User-centered design will be seen as “rapid” if it can fit within the existing structures, expectations, and development processes of the organizations that deliver systems and products. This still means change, but like any organizational change process, the change comes in steps. Chapter 16 discusses organizational adoption issues.

Any requirements gathering and design process takes time. For Contextual Design, the real speed (clock-time) of the process depends on the:

- Number of customer visits that you choose to perform
- Number of people who can work simultaneously on the project, or the helpers you can get at key points
- Dedication of the people assigned to the project, and whether they can work full-time
- Size of the problem, the more complex the business process, the more complex the product (therefore the longer it will take to define or redesign)
- Number of stakeholders that have to be satisfied, coordinated with, and communicated to (the more buy-in you need the longer it will take)

With a small enough project and focused, trained, dedicated resources you can do each of the major steps of the full Contextual Design process within five to seven weeks, particularly if you reduce the number of work models that you use (see the box, Karen and Ingrid’s story: a five-week Contextual Design project, for an example).

At InContext, we routinely do two-person projects covering every step of the process but use only the affinity diagram and sequence model to characterize the users’ work practice. Lapsed time for requirements gathering when the number of users is small (about 10 users) can be reduced to as little as two to three weeks, depending on the dedication of the team and the formality required for communicating findings. Even in one week you can collect data, build an affinity, and vision a solution after interviewing six users.

The LANDesk project is an example of a three-week project we ran to help them start to characterize their user population and drive data into their XP process. In many cases, CD is used only to gather and organize customer data and then other methods are used for the design phase. Any of these variants of CD will be considered to be more rapid by an organization rather than using all the steps of the full CD process and collecting data on a large number of users.

In Chapter 2, we lay out several ways to organize your design process to support a more rapid or limited CD process. We offer several variations of how two-person teams can use customer data in projects ranging from one to ten weeks of work. Depending on the steps you choose to do, the number of people on your team, the number of helpers you can get, and the number of users you want to talk to, you can design a variant of Contextual Design to fit your circumstances.
Our goal is to give you the hands-on examples and guidance you need to increase your productivity and help you bring user data into your requirements and design processes quickly and confidently.

Karen and Ingrid's story: a five-week Contextual Design project

Last year a small pharmaceutical research lab in our company asked for a team to design some software to run their work process. This lab was new, and many of the people we were supporting had been doing the work for only a few months. Because they did not have established ways of working, they were open to our investigating how they did their jobs and ways their work could be changed. However, the team and the lab were both on a tight schedule. We needed to deliver a working system in three months.

As two of our company's trained experts in Contextual Design, we were excited and a bit overwhelmed by this opportunity to coach and train our own team. Part of our strategy for getting the Contextual Design finished quickly was to have several team members who were already trained in CD. We had two developers who were already fully trained, two who were not previously trained in CD (and whom we only minimally trained), and a project leader who participated fully in the training. Two of our customers were also involved peripherally and received some training.

The system would have only four direct users, and we interviewed all of them. The customers learned a lot about their jobs through the interviews and consolidations. We consolidated some of the data with the users so they would understand where the data and designs came from and could participate in visioning the new system.

To reduce the time necessary for the Contextual Design process, we consolidated only three models, the affinity, the flow model, and the sequences. We then visioned and storyboarded the tasks. Based on these, we built a User Environment design for the new system. Our users got very excited about the User Environment design. They found they could see their work process in this model, and could see how the system would support the process and the different roles in the organization. In fact, the managers of the lab had a number of conversations about their work practice while walking the User Environment model.

The UI design and object modeling went forward in parallel once we had the User Environment design in place. For the UI, we built paper prototypes and did three rounds of testing (UI interviews) on them before moving to online prototypes. We used the redesigned sequences and User Environment design to develop use cases, using the focus areas on the User Environment to identify potential objects. We kept the User Environment design and use cases synchronized pretty well until we got to coding.

The customers are excited and involved, and used our data to help them see how to improve their own processes. Their new system actually eliminated a large portion of the work one person was doing. She spent a lot of time reformatting files as part of analyzing them. Now, she can do this analysis directly and spend this saved time on other projects.

For this focused project, the process took us eight weeks full-time, from initial data gathering through the object modeling and UI design. The Contextual Design portion took only five weeks.

How do I get my organization to adopt a customer centered design process?

Any introduction of user-centered techniques implies a change from existing practices. Companies already have the way that they do requirements and design—whether the process is written down or not, whether it is actually followed or not. So any change to those daily activities for developing systems means integrating contextual techniques with existing methodologies. Sometimes companies are adopting more formal meth-
ods like Rational Unified Programming (RUP) or starting to implement new methodologies like XP (Extreme Programming) neither of which have a strong user experience component. Questions arise about how Contextual Design fits with these methods.

But no matter the method, size of company, or type of system being developed introducing customer-centered design practices means organizational change—change in method, change in roles people play, change in skill sets, change in time spent with the users, and change in project management.

Chapter 2 defines the methodologies we reference throughout the book and provides an overview of how to integrate contextual techniques into these processes. Chapter 15 provides examples of how to map contextual design artifacts to those used by other methods. Chapter 16 provides strategies for organizational adoption.

**Rapid Contextual Design and other methodologies.** Successful adoption of CD includes making it work with other methodologies. In Chapter 15 we discuss how Contextual Design works with corporate methods, RUP or Agile techniques. We discuss how Rapid CD techniques augment these techniques. We discuss the relationship between consolidated sequences and use cases for characterizing the as-is user process. We also provide examples of how storyboards are used for developing scenarios, to-be use cases, and driving user stories.

**Issues of organization adoption.** Incorporating Rapid CD will require a strategy on your part as you decide on the best way to bring it into your organization. You need to think about what kind of project to start with, how to create excitement, and how to garner support. You also need to be ready to address the objections that will be raised by people who are reluctant to change. Chapter 16 gives you specific techniques to use, and the arguments you can make, in order to move forward.

Finally, one of the best means of getting support in your organization is to simply get customer data to help make decisions. However you get it—the data itself is the best technique for opening the door to customer-centered design techniques.

**What is CTools?**
Along with wanting a faster process, teams have consistently requested tool support for Contextual Design to reduce the reliance on paper and to share and reuse the results. And interestingly, having a tool is another way to entice the organization to adopt a customer-centered design process. Requirements gathering is a “soft” technique and talking to users often doesn’t “feel” like engineering. But using a tool suddenly makes what was “soft” feel “hard.” Especially when you are working with engineers, tools like CTools both help you manage the data and bring reluctant team members into the process.

CDTools is an integrated and modular software application that helps you organize your data and collaborate across your organization. Using this tool, you can capture your qualitative customer data in a team-based design environment. CDTools supports key aspects of the Contextual Design process, while guiding and supporting teams or individuals gathering and interpreting field data, analyzing and consolidating the data into an affinity diagram, and sharing it throughout the organization.
Chapter One: Introduction

CDTools will help you organize your user visits, capture affinity notes, and put your affinity online. Throughout Rapid Contextual Design we present when to use CDTools in the context of how the tool can support the steps of the Contextual Design process.

CDTools will enable you to:

**Streamline the Contextual Design process.** The tool minimizes paper use and speeds up data capture, analysis, management, and maintenance. CDTools has features to help improve quality of both the data and your analysis of it.

**Enable distributed teams.** CDTools supports distributed interpretation and design sessions.

**Share and reuse data.** Views of the data can be published in a browser format for cross-project, cross-team, and vendor-sharing supporting reuse, extension, and discussion of customer data and design.

Our intent with CDTools is to provide a tool that supports your process; we do not want the tool to take over. Using Contextual Design we found that focusing on using any software tool can get in the way of focusing on the actual work, so we have taken care to ensure that CDTools lets you take the focus off the tool and supports the work you are trying to accomplish.

**What project examples do we use?**

Throughout the book, we will provide examples of real user data and other artifacts created in the CD process. Examples have been drawn from real projects that we or our clients have conducted. The eChalk example runs through every chapter of the book, providing a consistent context for talking about the process. eChalk develops web-based tools for schools in the United States. eChalk began using Contextual Design in 2000 to create eChalk version 3.0 and has continued to leverage and extend their initial data with Contextual Design since that time.

We also draw on examples from projects we did with Agilent, Apropos, and LANDesk Software as well as an internal project InContext did on business-to-business (B2B) purchasing. In addition to these projects, other data examples are used to illustrate particular points. Sign up to access our resource web site www.incent.com/cdtools and see more examples of data to help guide your own projects.

We have taken care to protect our clients’ intellectual property and innovations. The data described in *Rapid Contextual Design* is used to illustrate how to use the CD process, and what real data and design artifacts look like. We have not tried to provide the whole process story for any example, nor do we reveal the nature of their ultimate product. Go see the final products to understand the full results of using Contextual techniques for product definition and design.

Thank you to all who supplied their examples so that others could learn.

**eChalk**

eChalk is the leading provider of affordable, web-based communication platforms specifically designed for K–12 schools in the United States. The eChalk product is de-
signed to enhance collaboration between students, teachers, parents, and school administrators. It provides features such as e-mail, calendaring, digital lockers for file storage and sharing, a school directory, teacher and class web pages, and online sharing of classroom assignments and information. The eChalk team has been using Contextual Design for several years; the data reflected here was gathered for eChalk version 3.0. For version 3.0, the team primarily focused on teachers, administrators, and school paraprofessionals, but also collected data from students. The team then used the entire Contextual Design process. This allowed them to use the project data—which was collected in 2000—to drive multiple, coherent product releases that fit into their long-term vision based on customer need. In late 2003 the team went back out and collected additional, focused data for additional features that will be rolled out in 2004 in eChalk version 5.0. See www.echalk.com for more information.

**Agilent**

Agilent Technologies is a global company and one of the leading providers of analytical instruments. These devices are used in the chemical, petrochemical, and pharmaceutical industries to determine the content and purity of products. They also are used by government and private laboratories to test for presence of pollutants, pesticides, and drugs of abuse.

The data used for examples in *Rapid Contextual Design* come from two projects that Agilent contracted. The first project focused on understanding and documenting how analytical labs run their business. This information was used to develop a consistent software architecture to support work flow processes that are key to the success of a laboratory. In such a lab, the analytical devices are networked together. Samples are logged and run on these devices. Analysts in the lab get daily lists of samples to be analyzed. Data is stored and queried from a database. The second project built on this original work and focused on quality control laboratories in the chemical and pharmaceutical industries.

The release of Agilent’s Cerity for Pharmaceutical QA/QC was the first application on the new architecture that was designed using contextual design. Customers were involved in the user interface design through the entire project. Many major pharmaceutical companies are using Cerity today in their quality control laboratories. Cerity provides security and compliance for electronic records and signatures that are now mandated by the U.S. FDA. These labs process high volumes of samples using pre-defined procedures.

Customers love the user interface and have purchased the product because it meets their workflow needs. Learn more about the product:


**Apropos**

Apropos Technology is an industry leader in providing multichannel customer interaction management, integrating e-mail, web, and voice. This project was part of the work...
that led Apropos from supporting call centers—where customers called in with problems—to supporting customers consistently across all interaction media.

The project goal was to understand how to support contact centers—any kind of organization that people go to for help or services. By understanding the nature of customer interaction in call centers—primarily voice-based—we could anticipate and design for issues of supporting people with e-mail and phone. The project looked at how customers can be helped through immediate contact with the right people and information. It investigated how people in the call center with no direct customer contact could benefit from the knowledge of the customer interaction. The project looked at interactions across the call center and also at specific interactions with callers.

**Purchasing project**

This project was part of a larger report on business-to-business relationships across multiple industries commissioned by SAP. The goal was to understand and support the role of purchasing in large organizations, looking for opportunities to support this relationship on the Web. The team focused on understanding how purchasing does their job and how they manage their two primary relationships: with the internal groups needing items and with the external suppliers providing goods and services. The project looked at all levels of purchasing, from providing commodities such as office supplies through creating long-term business-to-business relationships that make the supplier part of the production process.

**LANDesk**

LANDesk Software is a leading provider of unified desktop, server, and mobile device management solutions. LANDesk Software products are proven with more than 250 million nodes shipped worldwide. The company's flagship LANDesk Management Suite is the result of over a decade of innovation in systems management processes and technologies. The LANDesk team used rapid Contextual Design processes to bring valuable contextual data into their Extreme Programming development environment, allowing them to deliver a user-focused OS deployment solution on a tight timeline. The resulting LANDesk® OS Deployment Wizard automates the costly and time-consuming process IT administrators face for planning, deploying, configuring, and maintaining Windows operating system upgrades. The team created key project story lines and a target customer persona from the affinity diagrams and sequence models. The data continues to influence product design plans.


**Terms**

*System.* Contextual Design can be used to design desk top applications, business systems, web pages, consumer tools, scientific instruments, manufacturing processes, even home appliances and products. It can be used for products delivered to a market or for systems created internally to support business. In this book we use the terms products, systems, and web sites interchangeably. By these terms we simply mean “that which you are designing.”
Customer. When developing for a market your user population is the customers in your market. But when developing for internal users your user population is your business users. We use the term customer and user interchangeably to mean the people who directly use the system you are designing, consume its information, or direct work to be done in the system. Users or customers are the people whose work your tool will be supporting directly or indirectly. We do not mean the person who spends the money to purchase. So we are using customer in the same way as quality professionals do—that person whom you need to service.

Similarly, we use the term market and user population interchangeably.

Work. Throughout the book we talk about work, work practice, and work models. By this we mean whatever the activities the user is engaged in that we are interested in supporting. Work is a good term for business applications or business web sites. But consumers engage in life, life activities, and life tasks. Although sometimes we refer to life tasks, we primarily use the word work to mean any user activity.

Similarly a work model is a diagramming technique or drawing to represent the human activity observed in the field. Any of the five work models may be representing real work activities or simple life activities.

Customer-centered design. Whether we are talking about user-centered design or customer-centered design we are talking about the tools and techniques described in this book and others who seek to include user data and the voice of the customer into their design process.

Mock-up interview. Whether we use the term mock-up or paper prototype we are talking about a representation of the user interface of a potential product built from paper and taken out into the field to test it and extend the functional requirements.

Endnotes


2 InContext Enterprises is a design firm offering a wide range of customer-centered design services. Karen Holtzblatt and Hugh Beyer, InContext's founders, have been key figures in moving the industry away from product-driven, and toward customer-driven, design solutions based on in-depth study of people's work and life practice. They brought the Contextual Design methodology, which draws on proven techniques from a number of fields, to business. Contextual Design techniques are used by companies and at universities all over the world.