An Example of User Driven Design for

Company

Date: March 7, 2001

Consulting
860 Broadway
New York, NY 10003
http://www.Consulting.com

Rob Consolazio   Mark Wayland
404-915-4375   917-534-8283
rconsolazio@Consulting.com   mwayland@Consulting.com
Introduction:

During our visit to Wilmington, Consulting described a design process that starts with observing users in context. While we showed you several case studies, we believed that seeing the process applied to your problem would be more compelling. To that end—we decided to visit a medium sized employment agency in Chicago and observed the relationship between voice/data networks and the ways people communicate. We observed a member of their IT department who manages the voice network, a recruiting employee, and a receptionist.

The goal of this document is to give you a taste of User Driven Design with Consulting. This work is based on a limited base of interviews and is intended only to provide an overview of the User Driven Design Process.

This document is an attempt to show you how we would go about translating what we observed in a few short hours into tangible design concepts. The document is divided into five sections, the big insights, observation summaries, opportunity map, high level design themes and scenarios.
Part 1: The Big Insights

Sitting quietly and observing a busy office is a remarkable experience. Communication happens at such a frenetic pace you can miss essential elements if you’re not paying attention. At the end of the afternoon what we saw as “the big insights” revolved around three things: 1) communication needs and types, 2) making relationships explicit, and 3) associations.

Communication Needs & Types
As work is being done, groups form and disperse quickly, and communication happens with varying levels of formality, anything from sticking your head over the cubicle wall and asking if someone is done with a file, to placing a formal call to a potential client. An intuitive system will support all these different types of communication. For example, we observed one woman calling a list of potential employees. She actually communicated with herself. It seems simple, but checking off who she’d called, or using post-it’s to remember important issues raised during a call and their relationship to other files or people in the office were what we're calling “one-to-self” communication.

The most obvious type of communication we think of in the context of a phone call is “one-to-one” communication. However, even during one-to-one communication there is a need for informal interaction like chat, or the ability to provide context, be it in the form of a document that’s being discussed, or a job candidate. Other types of communication include one-to-many such as a broadcast voicemail or many-to-many (conference calling). The right interface will enable all these different processes in ways that make sense to people.

Making Relationships Explicit
As the focus shifts away from enabling technologies, and towards people and the things they’re trying to do, object relationships become really important. The person in the IT department who was responsible for the voice network complained about the command-line application he had to use to set up new employees in the system. There was no visual way for him to keep track of the relationship between people and objects, things like trunks, ports, extensions, voicemail boxes, and employees. A visual language that makes all of the relationships in the system explicit will be very helpful.

Associations
If we think about communication as a process, an incoming call is an event that requires a lot more response than just picking up the phone and saying “Good Morning, this is x…” We have to quickly determine the context: Who is it? When did I last talk to them? What did we talk about? After determining the context, we may then need to look up information in a database, review documents, or find notes to ourselves about that context. It is a complex process, and it requires a lot of thought, memory, and time. A superior communications effort will do as much of that work for us as possible.
Part 2: Observation summaries

Observation summaries are one to two page highlights of what we observed by shadowing or observing a particular person or department.

John
Member of IT Department Company, Chicago
Interview Date: February 23, 2001
Facilitator: Shelley Evenson, Michael Summers

Job Responsibilities:
Checks daily data backups, monitors servers, and has some helpdesk responsibilities. He does moves, adds, & changes for the voice network; he runs the dial-up application InterTel Axxess that makes changes to the PBX

Professional History:
[Not Known]

Educational History:
John is a self-described electronics nut who started taking things apart and building his own circuits as an early teenager. When questioned, he didn’t volunteer that he had any formal training.

Computer Literacy
John has a high degree of facility with computers. He can manipulate windows environments extremely quickly, has excellent mouse coordination, and can multi-task. While we observed him he was able to quickly manipulate the voice configuration interface (InterTel Axxess) far more quickly than it could keep up (it was dial-up). John has WinNT and Windows 2000 Professional MSCP test prep manuals on his desk that he was obviously reading. He seemed to have a strong sense of the current technology landscape both data and voice, and seemed aware of trends and new products.

Typical Day
John’s (self-reported) day begins at 9am, and the first thing he does when he gets in is check the server backups from the previous night. Then he checks his e-mail and responds. A break for coffee and food comes fairly early in the morning, and then he checks voicemail. Their IT department runs help desk software which he checks for any issues, or trouble tickets. He also spends time researching new products and upcoming technologies, such as messaging. He does some network planning with the IT director.

Key Findings

Current Solution Is Not Usable
"I hate the software, it drives me nuts." John complained at length about the clunky interface: InterTel Axxess. It is a menu driven and command line interface that runs inside a window but looks more DOS-based. He runs the application on a dial-up connection from his desktop, but acknowledged that the company recommends that if you have lots of phones you should do moves, adds, and changes ‘from the box’ (PBX?).
John estimated that 25% of the time the names he gets from HR for new employees are spelled wrong. He enters the name in the Intertel Axxess system and then people who use the directory name lookup are not able to find the employee. John is the only one with access to correct the problem.

When John assigns a phone the voice mail setup is a separate task, and he has to manually remember the extension he’s just assigned to them. There is no screen indication of what it is.

When John sets up a new person on the Intertel Axxess system he has to separately set up the trunk so they can receive outside calls.

If John wants to move someone to a new location he has to completely erase their voicemail, which involves a lot of back and forth and checking with the employee so that they don’t lose anything.

It took John about a month to learn how to use Intertel Axxess and he went and took a training class with the manufacturer.

**$$ is the Major Barrier to VoIP or Any New System Implementation**

John is aware of some of the features of other phones systems that are out there. He mentioned the AVAYA Merlin solution and described a desire for a system that was integrated with their data network, particularly their active win2000 database so that all employee data fields are common.

**UnMet Needs**

*Database Integration*

Single process for setting up new user, assigning trunk, creating voicemail box

*Ability to change extension without deleting voicemail*

*User-Access to Simple Configuration*

---

**Lynn**

Office Administration and reception Company, Chicago

Interview Date: February 23, 2001

Facilitator: Shelley Evenson, Michael Summer

**Job Responsibilities:**

The Chicago Company office is split up into two floors and Lynn is the office admin. and receptionist on one of the floors. She answers incoming calls, coordinates interviews and makes sure that files are complete. She does data entry from the forms potential employees (Company is a staffing firm) complete into the database.

**Professional History:**

[Not Known]

**Educational History:**

[Not Known]

**Computer Literacy**

Lynn described her computer skills as “not terribly extensive.” However, her facility seemed very good. She was multi-tasking in Windows without any hesitation, and her familiarity with common Office applications was high.
Tabbing and reverse tabbing between fields in their database application was easy for her. She expressed a desire for training.

Key Findings

Call Tracking and Ordering is Important
Lynn keeps a very neat desk. Documents are carefully sorted and arranged and she has important phone numbers taped to her phone console. She noted that when she has four or five calls active on her console at once, that she wishes that the first call she had taken was a different color so she could keep track of who called first.

Frequent Interruptions
Lynn was barraged by a variety of interruptions. Potential employees dropped off forms or stopped by to ask questions. She needed to pause to “buzz” people in occasionally. The phone rang frequently and she often transferred people to voice mail.

Are People Here?
One piece of information that Lynn mentioned repeatedly that would make her communication process easier is knowing if people are at their desk. She tried to keep a mental tally of who was at their desk on her floor, but when she covers calls for the other floor she obviously had no way of knowing. She wanted to know for sure so that she could transfer incoming calls directly to voicemail.

Julie
Recruiter Company, Chicago
Interview Date: February 23, 2001
Facilitator: Shelley Evenson, Michael Summers

Job Responsibilities:
Julie matches prospective employees with temporary jobs that need to be filled. She polls their database and makes calls. She interviews people over the phone and in person.

Professional History:
[Not Known]

Educational History:
[Not Known]

Computer Literacy
Julie has a high degree of computer literacy. She multi-tasked in multiple windows the entire time we were in the office—buying tickets to a Cubs game, looking at employees in the database, checking e-mail, etc. She was very fast with her mouse coordination and showed facility with a wide range of office applications.
Key Findings

**Phone Could Be Larger Part of Workflow**
The nature of Julie's work responsibilities and her work style would allow for better interaction between her phone and her computer. She balanced a manila folder directly below her keyboard that held the details of the job opportunity that she was recruiting for. Her attention bounced back and forth between the job folder, the employee records she was searching on-line, and her phone. She both placed outgoing calls to potential employees, and she also received callbacks from those she had already recruited for the job.

**Database Caller ID Integration**
Julie mentioned the obvious advantage of having her database automatically bring up the record of an employee identifiable through caller ID.

**Constant Team Interaction**
There were at least two other recruiters who were working on the same job opportunity as Julie. There was a constant need to know that the recruiters were not calling the same employee. They would often call out to each other asking questions about a particular person, and discussing the job opportunity.
To create the opportunity map the team members create a series of post-its - each with a key observation. The observations are clustered and patterns emerge. Each cluster is then named to describe the groupings. What you see below is the opportunity map followed by definitions of each cluster.

**Integration**: between the voice communications system and the rest of the network is a high priority. Integration with the Outlook contact list, or company-wide databases will make communication easier.

**Conferencing**: this field observation did not uncover much about conferencing, but we assume we will observe others who place a high priority on it.

**Drag and Drop**: John often used the term drag and dropped and motioned with his hands as he described his ideal process for creating new users or doing configuration of the voice network.

**Incoming Call Event & Association**: every incoming call is an event that must be recognized and associated with ongoing work. We observed complex relationships between the people who called, the various database records and file folders. A system that automated even partially these relationships, such as automatically bringing up records in a database would help.
**Communication Variety: Needs/Types**: rapidly formed work teams collaborate together and make outgoing calls in groups that are working to solve the same problem. Communication within these groups occurs at many levels, from non-verbal eye contact, to cross-pod conversations and desk visits. Instant messaging may have helped facilitate this kind of interaction, as it sometimes occurred during calls. Communication occurred in several forms: one-to-self (as simple as crossing off names on a list to remember who’s been called already); one-to-one (we observed a group in close physical proximity so this usually was done off-line); and few-to-few (because more than one person was working on the same job, a system of making sure no one called the same person could have helped).

**Organizational Systems**: in order to group and make meaning out of the information they are working with, people use spatial organization, color coding, and folder size.

**Private vs. Work**: There is a separation between communication activities that are personal and work-related. Julie had a separate day planner for personal contacts and calendar items, and she wove personal tasks (such as finding tickets to the Cubs game) into her day seamlessly while keeping it mentally separate.

**Visual Representation of Players and Events**: as we produce the interface we will consider employees (as they are represented in the database and elsewhere) as objects in the system, the “client” (as represented by a colored legal folder) will also be an object, as will calls, specific “jobs,” etc.

**Don’t Lose Physicality**: we were struck by how natural Julie’s interactions were with her phone. While multi-tasking on her computer and juggling file folders on her lap she was able to reach out and dial her phone without looking. We observed this behavior more than once. The loss of this familiarity in the new system may present a barrier to adoption.

**Reception Experience**: Lynn has low instrumental music playing in the reception area, and it’s worth noting that she is physically isolated from the rest of the office (at least in terms of seating). She’s not sitting close enough to her colleagues to shout out questions or see if people are at their desks.

**Reception as Hub**: Despite the fact that no one sits near Lynn, she is at the center of a lot of movement. She has five incoming phone lines, has to physically buzz people in the door, manage potential employees who are completing forms, enter their data into the database, and track folders and numerous papers that cross her desk.
Part 4: **High-level design themes**

To create the high-level design themes the team members studied the clusters from the opportunity map in the context of what would be important to Talking Nets. Some themes may be a stretch—but others may need to be addressed immediately, based on how important they are to adoption or ease of use.

| Learning & Training       | • Learn to use as you use       |
|                         | • Everything is an object that you can drag and drop |
|                         | • Contextual Help               |

| Communication Needs & Types | • People communicate with themselves and others (one-to-self, one-to-one, one-to-many, many-to-many) |
|                           | • Groups come together quickly and disperse quickly |
|                           | • Varying levels of formality |

| Making Relationships Explicit | • Between people and objects |
|                             | • Between objects and objects |
|                             | • Between people and people |

| Different Roles have Different Needs | • Admins need access to everything (all objects and all relationships) |
|                                     | • Receptionists/operators need support for seamless transfer, awareness (who's in and who's not) |
|                                     | • Users need a flexible subset of both sets of functionality |

| Total Task Support | • Set-up (checklists/steps or forms for adding people to the network) |
|                   | • Making a call |
|                   | • Defining groups (buddy lists) |
|                   | • Conference calling |

| Associations: | • Triggered by events, people |
|              | • Retrieves related stuff: contact info (who), database records (if they exist), journal entries, annotations |

| Call as Event | • Notification that you have a call |
|              | • Who is it (including seamless transfer from reception) |
|              | • How long the call has been on hold, and total call duration |
|              | • What is the context? How much can I know? What did I talk to them about last time? |
|              | • How do I include others? |
|              | • How is the call completed? |

| Private vs. Work | • Specialized groups, notification, and routing |
|                 | • Different associations |
Part 5: **Theme-driven scenarios**

Next, the team matches up the themes with specific people observed or to a profile that has been developed at some point during the discovery process.