What Customers Want

The magic formula for satisfied, enthusiastic customers is called “user-focused design.” Siemens experts integrate users in the development process, determining the requirements a product must fulfill and how it should look.

In the movie What Women Want, the protagonist suddenly discovers what women really prefer and desire, thus conquering their hearts. The character, played by Mel Gibson, is able to pull off this trick after receiving an electric shock, which gives him the power to read the mind of any female in his vicinity. Developers and product managers are in a similar, but far more difficult situation. They need to know what customers want — but they can’t read anyone’s mind. But they don’t have to work completely in the dark. One proven way of testing a product on potential buyers before its market introduction is the usability test.

“Oh, no,” says Olga Tsotsokou. “This one is really bulky,” Tsotsokou replies before selecting the design that she finds most appealing from among the five available versions.

“We prefer to hear candid answers from our test participants rather than polite replies,” says Lutz Groh, who heads the Munich Usability Lab. Within the laboratory’s walls, people of all ages test cell phones, accessories and cordless phones in all stages of product development. “We’re integrated in the entire process,” Groh explains. “Nothing is kept secret. Even poor test results help developers improve their products.” Through a one-way window, Groh observes a woman in the next room who is inputting a sentence with the stylus. The device is an innovation of the User Interface Competence Center at the ICM, to which the usability laboratory also belongs.

Magic Stylus. Customers can use the stylus to write on any surface — even on their own pants, just as if they were using a ball-point pen. But the words that are written don’t appear on that surface. Instead, they turn up on a cell-phone display. During the test, a computer monitor is used because the software has not yet been integrated into the cell phone, is currently being developed to the point where it is suitable for market launch.

“Hey, this is getting to be fun,” Tsotsokou says. After just a few minutes, she has gotten used to the stylus and begins to type the sentence again — but much faster this time around.

“We prefer candid answers rather than polite replies. Honest answers help developers improve their products. What we’re after is to know what people will like and won’t like.”

Take the MSS, for instance. Experiments with a plastic model determined that the test persons had problems with the planned design of the keys. “As a result, the keys were slightly rearranged and the keystroke lengthened,” Groh says (see photographs, p. 64).

Customers in the Lab. A usability test begins long before the first test participant takes a seat in the laboratory — and it ends long after the last one has left. “We keep an eye on consumers to see how and where they use the product in order to create typical user scenarios and demands,” says Stefan Schoen, head of the User Interface Design Center at Siemens Corporate Technology. Experts also interview users. “What we’re after is to know who does what, in which way, and with what goal in mind,” says Schoen in summarizing the catalogue of queries.

The Soarian hospital information system shows just how indispensable contact with users is. To upgrade the system, medical doctors from Siemens visit hospitals, where they meet with physicians and other personnel and discuss their needs. And this pays off. As of September, 2003, over 50 hospitals had ordered the software platform. With Soarian, doctors can immediately see what they need to do with each patient. The most urgent medical information is at the top of the list. Physicians also have instant access to...
The Value of Easy-to-Use Products

It's hard to measure the market potential of user-friendliness. Experts agree, however, that poor usability can hurt sales and that in many cases a lack of user-friendliness in consumer products has a direct impact on vendors' balance sheets. Hard-to-use items can lead to unmanageable demand for customer support and overburdened hotlines, which drive costs up and can cause sales to stagnate. "Companies that invest in user-friendliness tap into considerable potential for increased sales and cost savings," says Frank Heidmann of the Fraunhofer Institute for Work Sciences and Technology Management (IAO) in Stuttgart.

In 1999, for example, computer manufacturer IBM succeeded in increasing its online sales by 400 percent after implementing a uniform design for 200,000 of its corporate webpages. PC producer Dell increased its average daily sales from $1 million to $34 million by relaunching its website in 1999.

Returns on usability are considerable in the online sector. U.S. market research firm Nielsen Norman Group, which specializes in usability issues, estimates that companies can make a product twice as user-friendly by spending ten percent of the project budget on improving usability. Furthermore, every dollar that a company invests in the usability of its websites produces a ten- to hundred-fold return, according to IBM.

For non-online sectors, however, experts are still struggling to measure the current and future impact of high degrees of user-friendliness on sales and profits. According to a study conducted by market research firm Frost & Sullivan, for example, suppliers of intelligent house-automation equipment and software are likely to earn $399 million in Europe in 2009, a good 130 percent more than in 2002. How much of that is the result of a combination of user-friendliness remains unclear, however.

Usability has also been an important concern for years when it comes to developing telecommunications products, automation systems and medical devices. The focus is normally on ease-of-use, clear user interfaces and a high level of "learnability," which together allow efficient and effective deployment of the technology. In 2004, for example, Siemens Hearing Solutions will launch Connexx 5.0, an improved software application for adjusting hearing aids. The company hopes the software will reach new target groups. Part of the motivation behind this development is the fact that, in many countries, hearing aids are adjusted by dealers and not by trained acousticians.

"With the new software, Siemens now hopes to make the technology of the devices easier for non-specialized hearing aid vendors," says Stefan Schoen, head of the Siemens User Interface Design Center. "We expect that the new software will help us to increase our sales and profits," says Eduard Kaiser, product manager at Siemens Hearing Solutions. "But," he adds with a note of caution, "It will be very difficult to quantify the effect precisely, since other factors also play a role."

Measuring Usability. Usually, however, companies lack the necessary sales and usage data. "But without figures drawn from past experience, many companies budget insuffi- cient resources for this area, or none at all," says usability expert Kerstin Röse, who is an assistant professor for user-centered product development at the University of Kaiser- slautern and president of the German chapter of the Usability Professionals’ Association (www.gu-upa.de). "In contrast to the PC and online sector, many manufacturers of industrial goods still view investments in improved ease-of-use as a nice addition, but not really necessary. And that’s a serious mistake," says Röse.

The software industry, on the other hand, has known since the late 1990s that poor usability costs the U.S. economy around $30 billion per year in productivity losses, according to the Nielsen Norman Group. Manufacturers hurt themselves not only by neglecting us-

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The further along a project is, the greater is the investment required for improved user-friendliness. On the other hand, getting usability experts involved early leads more quickly to objective assertions about which product customers would accept. (Euro figures on right are relative values.)

The Saörian hospital information system is designed to handle the demands of a clinic. Doctors and other medical staff know at once what has to be performed and in which sequence. Each patient’s diagnoses. If the doctor determines that other examinations are needed, the system draws up a list of the most medically beneficial and economic approaches. And, in a single step, the physician can make notations in the patient’s electronic file and prescribe medications. In all other software products now on the market, the doctor can do this only by jumping between two user interfaces.

Siemens' usability experts also take a critical look at products. In Connextx software, for instance, which is used to fit hearing aids, Schön’s team recognized something at once. Hearing-aid acousticians had to use external equipment in order to obtain examples of sounds. In the new version, which will hit the market in 2004, sound data for various listening situations is built into the software. The software also helps retailers select and order the right hearing aids, and customers can view pictures of the hearing aid as it would look on them if they were wearing it.

Selecting Test Candidates. The actual usability test is conducted following a preliminary examination. All previous results are used in drawing up its concept, including the selection of test candidates, their backgrounds, education and possible experience with previous versions of the product that will be tested.

"We invite about five people from each target group to participate," says Schön. The usability team uses the test persons’ observations and answers to create suggestions for improvements. How urgent are the changes and what sort of costs will they generate? Tests on Connextx software showed that it was too complex for use by dealers who didn’t have any specialized training. But trained hearing-aid acousticians wanted to be able to perform sophisticated fine tuning of the aids. Today, both possibilities exist. One step allows the hearing aid to be tuned automatically to a great extent, with the dealer having to enter fewer than ten parameters. An additional step allows expert users to work with the full spectrum of more than 50 parameters.

Good Grades. At the IC usability lab, test participant Tsotsokou has reached the end of her interview. She was the last of the 15 people tested. Now, Greh and his team will get down to the job of evaluating the findings. For the stylos, the usability tests prove to be helpful. For one thing, the test group gave high grades to the stylos on ease of use, a finding that supports the decision to offer it as an accessory. "People would like to use something like this," Greh says. "Data entry even gives them a certain amount of pleasure." All of the test persons tended to like one particular design. Tsotsokou had a lot of fun taking the test. "At the start, it seemed a bit weird to me, like a real test," she says. But Greh pointed her in the right direction: "Just tell yourself we aren’t testing you. You are conducting tests for us."

Several models of the MSS cell phone were developed in an effort to make the layout and keystroke length as ergonomic as possible. However, even gives them a certain amount of pleas-