A group of experts is huddled around a PC, discussing the control panel of a washing machine. “If we replace the control dial with buttons, the options menu will have to change,” says psychologist Julia Körner, pointing to a flow chart on the computer screen. “What about using two dials instead, one for the temperature and one for setting the wash cycles?” asks anthropologist Gitta Rüscher. “That would significantly alter the look of the control panel,” states designer Claude Toussaint, who heads the Interface Design Working Group at designafaırs in Munich.

designafaırs was created from Siemens’ Design Department back in 1997. It is involved in the design of many products, including most of Siemens’ cell phones and planned UMTS devices. Other customers in-clude automakers and manufacturers of lamps and office furniture. At the moment, Toussaint’s team is working on a uniform control-panel concept for a range of washing machines.

“Our job is to suggest possible variations. The customer will then decide which is best,” explains Toussaint. His team relies on collaboration between many disciplines. The result is that instead of being completed sequentially, the steps in the product development process are subject to continuous feedback. Designers contribute their expertise as early as the analysis phase, for example, while specialists in ergonomics are involved throughout an entire project.

**Profiling Consumer Behavior.** Still on the subject of the control panel for the washing machines, Rüscher explains that different habits are prevalent in different countries. “In Scandinavia, a high-speed spin setting is very important, because otherwise it would take too long to dry clothes made of thick materials in the cool climate. People in southern Europe, on the other hand, put more emphasis on low-temperature programs,” she says.

Based on existing norms, Rüscher is researching how the options menu should be structured, and how various dials should be
designed and where they should be placed in order to make operation as effective as possible.

Meanwhile, Körner is responsible for ensuring that the options menus for new input devices are structured in a logical way. "We've shown the manufacturer how the hardware correlates with the software," she says. If a dial is replaced by buttons, for example, the layout of the menu changes too.

Körner’s specialty is to find out how people process information and solve different tasks—but she sometimes has a hard time convincing the engineers that they should entrust the design of an operation menu to a psychologist. “At times, it’s like a collision of two worlds,” says Rüscher. “The engineers like to think they can do everything themselves.” But their approach to problem-solving can lead to machines that seem to have been built only for engineers.

Körner offers another explanation as to why many devices are not ergonomically designed. In development laboratories, hardware and software specialists often work separately, without taking into account the fact that both areas influence each other.

“We don’t presume to claim that we know how everyone thinks,” says Rüscher. “But through our training, we’ve gained an insight into different cultural approaches.” When suggestions have been made, Toussaint discusses them with his team and can then see at an early stage whether they are technically feasible. Together with other interface designers, he is ultimately responsible for the overall design of the control panels.

**Product Development Limits.** But not everything that makes ergonomic sense or is technically feasible makes it to the product development stage. For instance, the client may impose certain restrictions. Indeed, customer habits and preferences naturally play an important role in product development.

Today’s problem of sorting the laundry to take into account dozens of temperature, washing and special settings, however, could easily be simplified. “For instance,” says Körner, “A door-mounted scanner would make it extremely simple to sort clothing. The scanner would simply read the symbols sewn inside each item. That would ensure excellent results. But there are two problems with this approach. First, many consumers are unlikely to trust this kind of technology, at least at the start. And second, a machine with just one button would probably appeal to only a relatively small, technophile target group — say single men, for instance.

Consumers are also extremely interested in washing machines that offer environmental information, such as how much water and power they use. But Toussaint notes that “Unfortunately, too little information on the consumption patterns of various programs is offered. Our task here is to create greater transparency.”

Once Körner has come up with several variations on the options menu theme, it becomes obvious just how complex they are. “We need larger displays in order to communicate important information clearly,” says Rüscher. Toussaint suggests using organic LEDs, as this information could be presented in color, making it as vivid as on a computer screen (see p. 45). However, it will be years before this technology becomes available at a reasonable cost. In the mean time, electronic ink would be a viable alternative, “because it should be ready for large scale production in 2004,” says Toussaint. Electronic ink enables displays to be large and relatively inexpensive. Furthermore, consumers will be amazed when “writing suddenly appears on an apparently normal product surface where there are usually buttons. And this writing will still be legible after the power is switched off,” says Toussaint, who calls this the “magic effect.”

**Smart Washing Machines.** Toussaint’s aim is for people and machines to communicate with one another. “It’s already technically possible to be notified via text messaging when your washing machine has reached the end of its cycle,” he says. “What I’d like to see now is a washing machine that automatically recognizes clothing and chooses the correct program for it.” Toussaint envisions smart machines that can “talk” to smart clothing. A transponder sewn into a silk shirt, for example (see p. 16), could communicate the message that it should not be spun. Alternatively, the machine could tell the user: “I can wash your clothes quickly. But if you’re not in a hurry, I can choose a program that takes longer but uses less water and electricity.”

*Michael Lang*