Wanted by the Police: A Good Interface

Policing Sgt. Thomas Navin of the San Jose Police Department enters data into a patrol car's computer system. The system has baffled some officers.

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SAN JOSE has a reputation as one of the safest large cities in the nation, with the fewest police officers per capita.

Yet a number of the 1,000 officers in this city of 925,000 in the heart of Silicon Valley have been worrying about their own safety of late. Since June, the police department has been using a new mobile dispatch system that includes a Windows-based touch-screen computer in every patrol car. But officers have said the system is so complex and difficult to use that it is jeopardizing their ability to do their jobs.

Officers complain that routine tasks are so difficult to
perform that they are discouraged from doing them. And they say that the most vital safety feature - a "call for assistance" command that officers use when they are in danger - is needlessly complicated.

"Do you think if you're hunkered down and someone's shooting at you in your car, you're going to be able to sit there and look for Control or Alt or Function?" said Sgt. Don DeMers, president of the San Jose Police Officers' Association, the local union and the most vocal opponent of the new system. "No, you're going to look for the red button."

Officers also say they were not consulted about the design of the user interface - how information is presented and how commands are executed using on-screen and keyboard buttons. Many have said they wish the department had retained and upgraded the old system, in place since 1990.

Such complaints have a familiar ring. Anyone who encounters technology daily - that is to say, just about everyone - has a story of new hardware or software, at work or at home, that is poorly designed, hard to use and seemingly worse than what it was intended to replace. Yet because the safety of police officers and the public is involved, the problems in San Jose are of particular concern.

At the heart of the dispute is the question of how much the technology itself is to blame, how much is a training problem and how much can be attributed to the predictable pains associated with learning something new.

Any new technology, whether it is a microwave oven or the controls of a Boeing 777, has a learning curve. And often the user interface, the all-important gateway between person and machine, is a dizzying array of buttons or keys that have to be used in combinations. It can take weeks, sometimes months, of training and adapting for people to become comfortable with a new system.

Police department officials in San Jose have acknowledged that the off-the-shelf system, which cost $4.7 million, has had some bugs, yet they say the software vendor, Intergraph Corporation, of Huntsville, Ala., has fixed many of them.

"The city and Intergraph have worked together to iron out the software and work-flow issues that sometimes accompany the introduction of a new system," said Alice Dilbeck, vice president for customer services at Intergraph.

And at public safety agencies elsewhere in the country where similar software has been introduced, employees have eventually grown used to the new technology.
Still, questions and complaints remain, not only among patrol officers but among dispatchers who say that with the new system, unlike the old, they are unable to perform several tasks at the same time.

With the system, officers in the field can receive orders, send messages, write reports, call up maps of the city and, using the Global Positioning System, see not only where they are but where other patrol cars are at any given time.

When first installed, the system was unstable. A day or two after the new system went into operation, it crashed, and for several days it was periodically down. "That didn't engender a lot of trust," said Sergeant DeMers of the police union.

Ms. Dilbeck acknowledged, "That was a really bad start."

When the system was running again, a number of bugs were discovered, said Aaron Marcus, president of Aaron Marcus & Associates, a user-interface design consulting firm in Berkeley, Calif., that studied the new system at the request of the union.

Some of the map information, it turned out, was inaccurate, screens were cluttered with unnecessary information, the on-screen type was difficult to read and officers could not easily perform one of the most basic tasks - the license-plate check.

"This is almost a casebook study of what not to do and how to do it wrong," Mr. Marcus said.

Perhaps the biggest misstep of all, Mr. Marcus said, was that the officers themselves were not consulted beforehand, especially when it came to the design of the interface.

Jakob Nielsen, a principal of the Nielsen Norman Group, a technology consulting company in Fremont, Calif., agreed.
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