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## For Motorola scientists, nosiness can be a virtue

### Social TV project studies interactions among viewers

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Crysta Metcalf has eavesdropped on the conversations of strangers, pored over their personal photographs and grilled them on their closest relationships.

Such nosiness is all part of her job of studying people and how they communicate.

Metcalf is the principal staff anthropologist at Motorola Inc. Her responsibility is to spot long-term trends in how people socialize and interact, then help translate those findings to engineers and designers for use in inventions from three to 10 years into the future.

Motorola has employed social scientists like Metcalf for 15 years, putting them alongside engineers and technology specialists. She prefers having people with different science backgrounds collaborate over the traditional "throw it over the wall to the engineers" approach to research.

"I think this model of working is so important to successful innovation," said Metcalf, 42, a fast talker with a wide grin whose neat cubicle sports a "Hippie Chicks Rule" sign and a Rosie the Riveter picture. She joined Motorola in 2000.

In her seven-person team, PhD computer scientists and engineers conduct field research associated with traditional anthropological study. Their current undertaking is a project called Social TV, which studies how people bond over television.

Research and development is the core of any technology firm. But Motorola's financial problems have seeped into the research division. Two weeks ago the company said it was cutting about 150 of its 630



Motorola Labs employees, and there is more uncertainty ahead as Motorola plans separating its ailing cell phone business from the rest of the company in 2009.

Executives haven't said how they will divide intellectual property and research staff between the two new companies, though the good news for Metcalf's team is that Social TV survived the latest round of cuts.

Daniel Moloney, the executive vice president who oversees the Labs, said the firm is focusing on certain projects and reassigning other groups to specific business divisions, such as handsets and cable TV set-top boxes.

"There's no question that innovation is at the heart of Motorola—it's always been a key part of our heritage and is important to our business competitiveness," Moloney said. "Now, more than ever, we recognize the importance of strategic R&D for the future of our success."

## **Veering into the abstract**

Sometimes it's difficult to connect fast-moving product development with Metcalf's work, which often veers into the abstract.

For example, participants in past projects have kept digital photo and video diaries. In one study, people photographed objects that symbolized connections with their closest friends and relatives. One person shot a loaf of gluten-free bread baked by a loved one, while another chose a tape recorder because her traveling husband would leave messages for her.

But out of such experimentation grew new ideas about social communication. Another important step occurred several years ago, when researchers observed how people talked on the phone while watching the same TV show.

Metcalf's team wanted to further study social interaction around TV. And that's when the most rudimentary concept of Social TV began to take shape.

The researchers designed a prototype and recruited friends of friends for the first phase of testing.

"It looked like a PC attached to a television with a big microphone on a coffee table," Metcalf said.

In the first trial, participants watched different TV programs and spoke through the microphones as if they were on speakerphones. Metcalf's team recorded the activity on video cameras, then interviewed participants afterward about their experience.

"We learned universally that people watch TV with their feet up and no socks," said Guy Romano, the group's project leader. "We couldn't use that data."

The team did draw other useful information. Viewers engaged in small talk to pass time during

commercials or swapped trivia during sports games. Enthusiasm for the system was high for sports programming, but the audio connection could be distracting in large group settings.

Metcalf and the other researchers then designed a second prototype that left out the audio but added a small orb that glowed blue at one house when the Social TV system was switched on at the other home.

The second-round participants said they wanted more communication features. So for the third phase, researchers brought back the speakerphone and added messaging.

The earliest type of messaging was sending a simple thumbs up or thumbs down to the other home, using a repurposed TiVo remote. Later, participants could use a keyboard for real-time chatting or invite friends to watch a show. The orb changed colors to signal how many households had turned on Social TV or an incoming invitation.

## **Patterns in behavior**

Metcalf's team is still combing through the latest testing data but observed some general behavior patterns. Elaine Huang, senior staff researcher, said "conversations are pushing out beyond TV," with one group of users proposing a pizza outing over chat. Joe Tullio, senior research scientist, saw that male viewers were chatting more with their friends' significant others.

The Social TV team is a largely self-contained unit. The researchers design the prototypes, set up the equipment in living rooms and transcribe the responses from live interviews or having participants answer questions on a voice-mail system.

When the glut of raw data arrives, the challenge is how to make it useful. Metcalf's organizational method involves sticky notes—a lot of them.

The researchers print important quotes or observations on notecards, which are then tacked on the walls of a conference room in the Galvin Center at Motorola's Schaumburg campus. Noel Massey, principal staff research engineer, came up with the idea of printing bar codes on the cards so they could be easily scanned into a computer database.

If the researchers detect a common theme among several cards, those cards are grouped and the theme is written on a pink sticky note that sits on top. Pink ideas are summed up on blue notes, which are in turn summed up on green notes. Product design ideas go on orange notes.

Metcalf invites employees from outside the Labs to survey the walls of the conference room, which also houses a faux living room set-up for Social TV testing. It's a "great way to transfer ownership" of the data, she said.

It's not clear how Social TV will proceed or whether the system will become a commercial product. But the team has a green light for further research, which feeds into the company's broader efforts to

study TV-related technology.

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