REAL WORLD CASE 3

Verizon Communications: Advances in Speech Recognition Software Are Extending the Utility of Traditional Applications

The velvety voice of the woman on the other end of the phone is really just digits on a disk somewhere at Verizon but "she" remembers you spoke to her earlier, before you were interrupted "I apologize if I ask some questions you already answered," the voice sounds genuinely contrite.

The virtual telephone-repair lady is just getting warmed up. "I'll test your line from here OK, I've started the line test. It could take up to a minute. I'll also check to see if anything's changed on the line since you last called." While the test runs, she asks for more information about your telephone problem, and seems to understand your every response.

Presently she says, "The line test is finished now. Unfortunately, it couldn't determine if the problem is in Verizon's network or with your equipment, so we need to dispatch a technician. . . . Here we are—I've picked up all of our technicians' current schedules. The earliest we can schedule it is on Thursday, between 8 A.M. and 6 P.M. Can someone give access to the premises at that time?" The call is soon completed, and on Thursday, so is the repair.

Computerized speech has come a long way since the early 1980s. The technology has become smarter, easier to use, and more integrated with other applications. Such technical advances, plus product introductions that facilitate the deployment of the technology by mainstream developers, are enabling new uses for automated speech systems.

Research in ASR goes back to the 1930s, but serious commercialization of it didn't begin until 50 years later. In 1988, Dragon Systems Inc. demonstrated a PC-based speech recognition system with an 8,000-word vocabulary. Users had to speak slowly and clearly. One. Word. At. A. Time.

The next big step came in 1990, when Dragon demonstrated a 5,000-word continuous speech system for PCs and a large-vocabulary, speech-to-text system for general purpose dictation. In 1997, Dragon and IBM introduced continuous speech recognition systems for general use.

Meanwhile, corporations began rolling out interactive voice response (IVR) systems. The earlier ones—indeed, most in use today—are menu-driven: "For your fund balance, say or press 'one.'" A few advanced systems are more conversational: "What city are you departing from?" Despite the steady advancements to bigger vocabularies, lower error rates, and more natural interfaces, however, speech products have remained specialized tools for niche markets such as PC navigation by the disabled, medical dictation, and tightly constrained customer service interactions.

But now, previously stand-alone speech systems are linking up with enterprise systems to access other applications and spawn transactions. As a result, these speech systems—previously the domain of call center and telephony managers—are increasingly becoming something for the IT shop to worry about, if not manage.

Verizon's speech application, for example, can trigger a line test, update customer accounts, schedule repairs, and create trouble tickets—processes that require interfaces with many systems. "If you create something that's just a veneer, people get it very quickly," says Fari Ebrahimi, senior vice president for IT at Verizon. "But for customers to really get value, you need to do something with the back office."

Many of Verizon's back-office functions have been redesigned as Web services and are accessible by customers over the Web or by spoken request. The new system handles some 50,000 repair calls per day and has boosted the percentage of calls that are fully automated from 3 to 20 percent.

"The technology that used to be in those telephone silos, managed by the call center manager, is now becoming standards-based and is being driven by the same application server that serves the Web pages," says William Meisel, president of TMA Associates, a speech-technology consulting firm in Tarzana, California. "Now the IT department can create the applications in an environment that's more familiar to them."

Case Study Questions

1. What are the business benefits and limitations of IVR at Verizon? How could their use of IVR be improved?

2. What types of business situations would benefit most from IVR technology? Which ones would benefit least?

3. Given the advancements in voice recognition software over the last 20 years, what types of new applications for IVR do you see in the next 20 years? Give examples.