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An SBIR Success Story

Good Morning.

A requirement from the 3rd Fleet surgeon general states "Medical personnel in foreign locations providing humanitarian aid require the ability to select English medical phrases that would then be mapped to a recording of the same phrase in the required language. This technology must be robust enough to operate in military environments." Based on this requirement, DARPA initiated a small business innovation research effort to advance portable and handheld translation technology. I would like to tell you about the history and results of a tactical insertion of this effort.

DARPA solicited SBIR performers to engage the problem. From the pool of potential organizations came one with a novel idea and a motivated team. Marine Acoustics International (MAI) and its principal investigator, retired Seal Ace Sarich, proposed taking the technology two steps further by eliminating the requirement to select phrases, but rather to develop translation technology with the ability to perform noise robust automatic speech recognition (ASR) and to expand the domain from just medical support to an adaptable toolkit format supporting any military domain including force protection and humanitarian support such as refugee reunification. What we had received in the form of a proposal was the very spirit and essence of the SBIR process. Over the next 12 months of the Phase I effort and the first 12 months of Phase II, MAI moved through three major generation changes: from notebook platform, to Pentium-based wearable, to handheld PDA. During this time, in addition to platform changes, the automatic speech recognition was improved and the user interface was optimized for field operations.

As the technology was matured, the systems were provided in prototype form to Navy and Army organizations in the Gulf region for maritime intercept operations and Kosovo for force protection and medical support. Through coordination with CINC science advisors, we were able to capture critical user requirements and build a case for eventual procurement requirements for transition to a Service level or joint program office. We were psyched: European command was ready to formally evaluate our system for a force protection scenario built into training exercise Eagle Strike in Poland. The exercise was scheduled to start on September 12, 2001. Despite the events of September 11, the crack team delivered the technology and, despite a delay, the exercise was a complete success.

Next, the DARPA director solicited rapid technology insertions for support of Operation Enduring Freedom. The SBIR team, now called the "Phraselator Team" presented a proposal to insert a tactical robust phraselator system supporting medical triage, force protection, and refugee reunification for use by troops in Afghanistan. The program was approved as a 10 month high-risk/high-payoff tech insertion effort known as Rapid Multilingual Support (RMS), which has been incorporated into the Babylon Program. In 89 days, the first advanced prototypes were built, stress tested, and loaded with all three mission packages supporting the languages of Pashto, Dari, Urdu, and Arabic. Less than a month later, 28 systems were delivered to the operational area, including the embassy in Kabul, Bagram airbase, and Kandahar. The units, with coordination from the CINC science advisors and local military staff, were delivered with formal training sessions and a toolkit allowing modification of mission packages, and even the addition of new languages. While in theater, the support team created two completely new mission packages with the user toolkit for detention facility operations and special OB-GYN missions for local medical teams.

The team was in theater for 4 weeks, returning home on April 2. As this presentation concludes, an additional 30 next-generation advanced prototypes are being delivered to the operational area plus other regions as mission requirements dictate. The total prototype production will be around 500 units. The Navy has separately funded an additional 250 units that will incorporate a more advanced CPU, noise-canceling, and power management technologies. As of June 2002, the program has been supporting the establishment of a joint program office for continued development and first article delivery. The mission needs analysis is complete, and transition efforts are continuing. Approximately 800 units of several generations will eventually be in the field helping our troops with translation support.

All this, from an SBIR.

Thank you for your attention.