

Enabling Modeling and Training through Knowledge Acquisition

Innovative Software Tools Enable Organizations to Learn from Their Experts

Technology and Innovation

The task of acquiring, assessing, cataloging, and making knowledge available to those who need it when they need it is becoming increasingly difficult. Today, the sheer amount of data often overwhelms an organization's ability to make effective use of it.

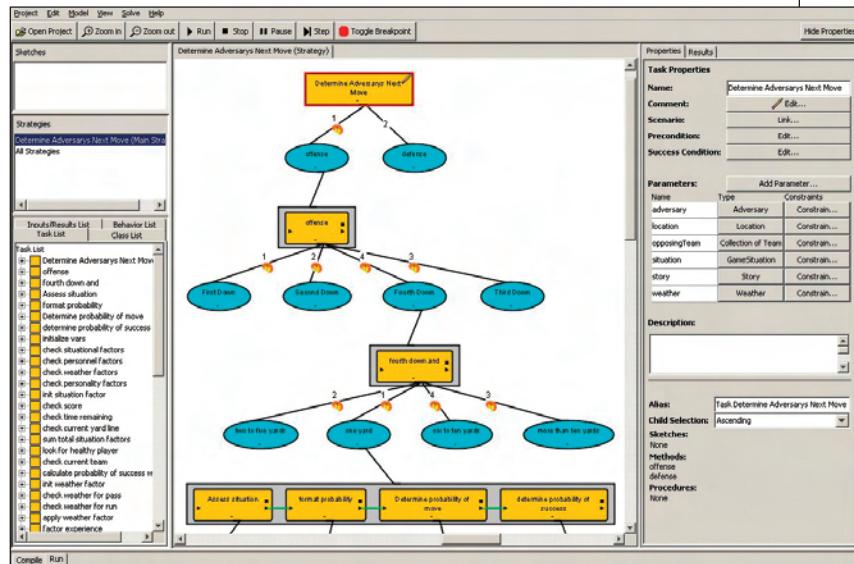
In response to this challenge, Discovery Machine, Inc. developed Expertise Encoding and Execution Workshop (E³W) software specifically designed to enable experts to computerize their own strategies for solving complex problems, thereby making them readily available to others at a future point in time.

Discovery Machine's approach is unique in that it is focused on keeping subject matter experts engaged in the knowledge acquisition process from beginning to end, allowing them to fully participate in the creation of expert models for decision making, diagnosis, planning, and more. Once expert models are captured by E³W, the company's software allows these models to execute on a variety of platforms.

Discovery Machine's technology is being used by the Naval Air Systems Command (NAVAIR) as part of the Affordable Human Behavior Modeling (AHBM) Mission Builder, which provides human behavior models for application as computer-generated forces or intelligent agents in simulations for military training and analysis.

A tailored version of the E³W called the mission builder enables trainers of

Discovery Machine™ Inc.
Accelerating Innovation



Naval Aviators to quickly build entity missions into intelligent planes, ships, and submarines for training. The company has also sold its products and services to a number of commercial customers, including Concurrent Technology Corporation, 3DSolve, Inc., Global Infotek, QuantumBio, Inc., and Lockheed Martin Advanced Technology Labs.

E³W software computerizes experts' problem-solving strategies, giving users the ability to choose each step wisely

Joint Collaborations

In addition to this DARPA SBIR, Discovery Machine has participated in SBIRs from NASA, the National Science Foundation (NSF), Naval Surface Warfare Center, Dahlgren Division (NSWCDD), and has subcontracted to other businesses on Navy projects. The company attributes its DARPA SBIR with giving it the credibility and additional technology needed to participate in these projects. According to Discovery Machine, these collaborations allowed the company to use its technology and

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methodology to provide and demonstrate real-world solutions for commercialization.

Lessons Learned

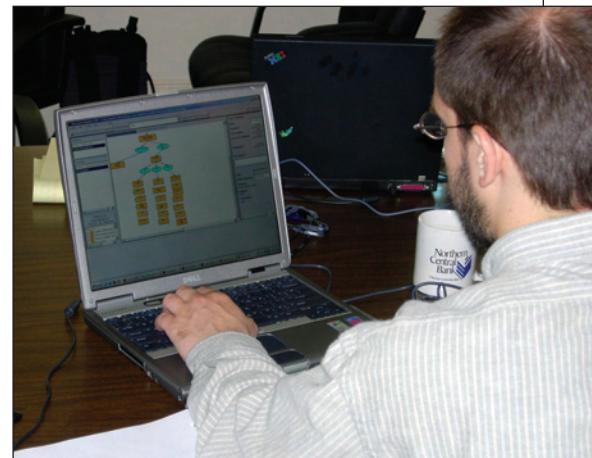
- When acting as a subcontractor, quickly assess where the company can make the biggest impact, and then focus on that area rather than attempting to solve every problem.
- When transitioning a new technology to the military, patience is a virtue. The length of time required is usually far greater than can be anticipated.
- The military is less interested in licensing software and more interested in obtaining services. The software, therefore, is not the focus. Instead, the training and methodology that accompany the software is the focus.
- Do not focus solely on impressing the DARPA program manager, but rather on producing a sellable product. The R&D world of the DARPA program manager may not place as much value on well-developed products as does the commercial world. It is important to satisfy both.
- It's imperative to communicate effectively with the program manager. If it becomes clear that a change in direction will lead to a better solution, it is important to present this new idea to the project manager and get it approved.

Economic Impact

This DARPA SBIR has allowed Discovery Machine to hire and retain people while providing significant funds for development of core products and significant opportunities to connect with Department of Defense and other government offices. The company's management team has grown the company organically, with limited angel equity investment. Approximately 72 percent of the company's technology development funding has derived from the SBIR program. The company has had four SBIR Phase II projects since April 2000.

Discovery
Machine has three
patents pending, two
in progress, and more
than 150 patent idea
sheets logged and
witnessed.

The company's
revenue will greatly
increase with the recent
NAVAIR Orlando
award of a \$7.9M,
five-year contract for
operational work with
the knowledge capture
technology.



An end user training session

About the Company

Discovery Machine, Inc. is a privately held, woman-owned small business with headquarters in Williamsport, Pennsylvania, and offices in Raleigh, North Carolina. The company provides custom solutions, software tools, comprehensive services and training to a broad range of industries that include national defense, homeland security, aerospace and life sciences. ■

Company Information

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Number of employees: 10