Spin-on and Spin-off Challenges of Commercial Technologies

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Agenda

Spin-on and Spin-off Challenges of Commercial Technologies

- Commercial to DoD
  - Technologies, Challenges, Lessons Learned

- DoD to FedCivil (other Government agencies)
  - Technologies, Challenges, Lessons Learned
Presentation will follow a thread of one technology from commercial to DoD and FedCivil

- Commercial Entertainment technology ('95) - used optic sensors to track an individual’s (actor’s) position in the real world and visually display a computer graphics representation of that person on the computer ...but NOT in real time, with no terrain database...for the purpose of producing special effects for the movie industry
Commercial to DoD – Technology Transfer

• Technology Transfer Vision – Use the technology to track the position of a person in the real world (soldier, police officer, fireman, student), and then immerse that individual in a military type virtual environment ...in *real time* for the purpose of training and testing

• Technical Challenges
  • Convert the entertainment system from non-real time to real time
  • Convert the system to be DIS (and HLA) compliant to allow interaction with other simulators
  • Develop detailed terrain databases of terrain/buildings

• Other challenges – find the R&D funds to allow us to solve the technical challenge
Commercial to DoD – Technology Transfer

- Solution
  - US Army STRICOM funded the R&D.
  - Technical challenges were basically solved.
  - Dismounted Soldier System (DSS), later renamed “Real Guy”, was successfully developed.
Commercial to DoD – Technology Transfer

- Success Story
  - The OSD Live Fire Test and Training program and STRICOM are utilizing the DSS/"Real Guy" for testing of the next generation Soldier weapon, or OICW -Objective Individual Combat weapon.
Commercial to DoD – Technology Transfer

Problem

• Problem with Dismounted Soldier System – mid 90’s
  • As built, the system was too costly for training
  • Expensive IG to process/display terrain
  • Expensive main host computer
  • DoD services did not immediately embrace the technology for training... due to cost, fidelity, and cultural reasons
    • Easier and less $ to send the troops out to a range with MRE’s to train
Where did we go with the technology?

- Using IR&D, re-hosted the terrain and software onto PCs - “Real Guy”
- Visual fidelity improved each year as PCs became more powerful
- Higher fidelity SAFs being developed for individual combatants
- Developed “partial immersive” desktop simulator (vs full immersion) – more customer appeal - much lower cost
- Training community working to define which training tasks are best trained in a 3D environment
DoD to FedCivil – Technology Transfer

- Challenge – migrate this DoD individual immersive technology to commercial & Government customers

- New customers must be able to fund the conversion of the technology to their application…. Commercial, Law Enforcement, Education, Transportation, and Entertainment
  - Conversion includes developing new terrain databases, new SAFs, new “models” (police cruisers or school buses versus tanks) and new scenarios

- We knew commercial customers do not generally fund R&D

- Solution: federal government agencies (DoT, DoEd, DoE) could fund the development necessary to modify the technology to their application
DoD to FedCivil – Technology Transfer

• How did we go about securing these new customers?
  • Demo, demo, demo
  • Established partnerships with local, state and federal education, law enforcement, and transportation organizations
  • Submitted papers/proposals
  • Found champions in each of these organizations
DoD to FedCivil – Technology Transfer Results

- Over the past three years, received funding from customers in Education, Energy, and Transportation
  
  ⇒ **Education** - VR system for Orange County Public Schools to teach deaf children social/academic skills. Expanding to other states
  
  ⇒ **Transportation** – VR system to teach transit police officers correct procedures in case of a WMD attack on a subway
  
  ⇒ **Energy** – developing a VR system to teach correct handling of radioactive waste materials from a Nuclear Energy plant
DoD to FedCivil – Technology Transfer

- Lessons learned in transferring DoD technology to FedCivil:
  - Customers do not have large R&D budgets …conversion to their application must not be too costly
  - New market for DoD firms. Lack of understanding of their buying habits and methods and lack of understanding of M&S by the potential customers (e.g. DoT sends typically buys buses and trains…not simulators)
  - Requires years to understand the FedCivil market and develop the relationships
  - Customers are spread out (e.g. thousands of local, state law enforcement agencies) so marketing tends to be geographically dispersed and fragmented
Where are we going with this?

Continue the same business model and permeate more FedCivil customers (e.g. Medical, Education, Homeland Security)
  - PC Hardware costs has leveled off, but the PC capabilities continue to increase each year
  - Result – fidelity improvements

Continue to have DoD fund the state-of-the-art in VR technology (SAF, terrain databases, networking, etc.)

Transfer the technology with minimal cost
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