



Thinking Teams

Virtual Simulation in Emergency Management

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Outline



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- Simulation's Inherent Advantages
- What is a Simulation?
- What Does a Simulation Enable?
- How Does Simulation Benefit EM?
- Challenges in Adopting EM
- Conclusion

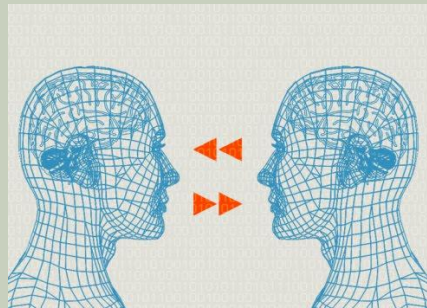
Simulation Advantages



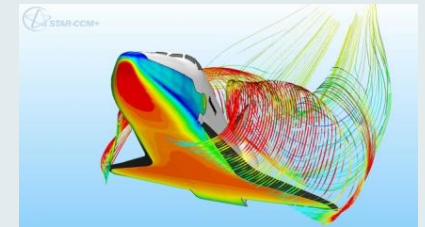
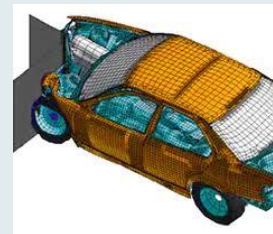
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**Practice with
reduced
cost and danger**



Predict and plan



Observe complex interactions



What is a Simulation?



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Representation of Reality

- Objects
- Words
- Actions
- Visualizations



With Specific Properties

- Scope/Boundary
- Completeness
- Granularity
- Medium
- Purpose



What Does Simulation Enable?



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- Automated book learning (explicit knowledge)
- Experiential learning (tacit knowledge)
- Psychological acclimation
- Team building
- Planning in complex situations

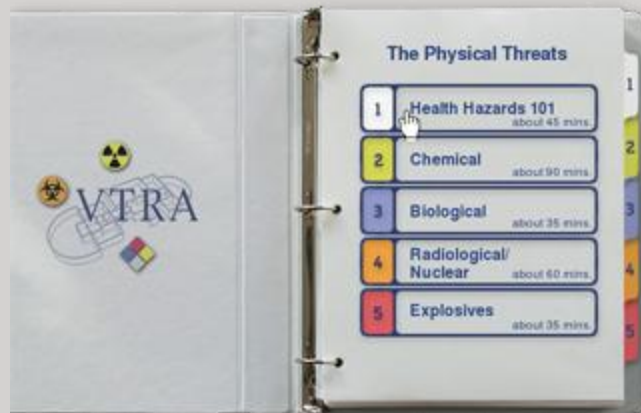
Training with Specialized Instruments



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Dartmouth College Virtual
Terrorism Response Academy
(<http://www.vtra-hazmat.org/index.php>)



Driving Simulator



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DORON Precision Systems
Fire and EMS Simulator System
(<http://www.doronprecision.com/>)

Virtual Life Saver



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Sandia National Laboratories Bioterrorism Simulated Medical Emergency Response

- Patient exhibits realistic symptoms
- If not properly treated patient will die

Hydra Immersive Training*



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Scenario:

Aircraft collides with Satellite building at Stansted Airport.

Possible Causalities:

150 persons on board the plane

Unknown persons in the Satellite building.

15 baggage handlers and ground staff working in the immediate area



* <http://www.hydra-minerva.com/index.htm>

Handling Urban Complexity



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New York City Office of Emergency Management
Advanced Disaster Management Simulator
(<http://www.trainingfordisastermanagement.com/>)



How Does Simulation Benefit EM?



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- Less expensive and disruptive than real-life drills
- A much wider range of experiences can be provided
- Training can be fine-tuned; exercises repeatable, with controlled variation
- Instant trainee assessment and feedback
- Adapt to trainee work schedule
- Coordinate across multiple locations
- Post-exercise analysis can improve training and emergency response

Challenges in Adopting Simulation



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- Simulation technology is unfamiliar to many EM organizations and leaders
 - Will it be effective, worth the effort/cost?
 - Can my organization figure out how to make it useful?
 - Will playing video games really make my people better?
- Limited data on comparative training effectiveness
- Up-front investment required, and for maintenance as well
- Will never fully replace real-life exercises

Conclusion



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- Virtual Simulation (VS) offers the potential to greatly enhance emergency preparedness
- VS is currently being used worldwide, with technology and services offered by a variety of commercial and research organizations
- Want to use VS for emergency management? Talk to similar organizations already using it!
- Developing VS technology? Develop concrete evidence of cost-effectiveness!