

A banner for SimTect 2006. The top part is white with the text 'SimTect 2006' in a dark red font. Below this is a dark blue and purple background with a yellow wireframe globe on the right. On the left, there's a photo of a person at a computer workstation. The website 'www.simtect.com' is written in white over the photo. Below the banner, the text 'SIMULATION: CHALLENGES AND OPPORTUNITES FOR A COMPLEX AND NETWORKED WORLD' is in blue, and '29 May-1 June 2006 Melbourne Convention Centre Melbourne Australia' is in green.

SimTect₂₀₀₆

www.simtect.com

SIMULATION: CHALLENGES AND OPPORTUNITES FOR A COMPLEX AND NETWORKED WORLD
29 May-1 June 2006 Melbourne Convention Centre Melbourne Australia

Training, Planning, Rehearsal and Execution through the Integration of Live, Virtual and Constructive Systems

Larry Grice



Simulation – fulfilling the promise

Successes and visions for the road ahead

In the Beginning



Mission Planning to Mission Execution Ratio



- **Twelve (12) hours of planning for each hour of mission execution**



Mission Planning to Mission Execution Ratio

- **Two (2) hours of planning for each hour of mission execution**



The remaining issues with the integration of the live virtual and constructive domains were still significant:

- 1. Integration with Mission Planning Systems**
- 2. Database Development Timelines**
- 3. Correlation Issues**
- 4. Accuracy**
- 5. Missing Elements of the virtual environment.**

All these items lead to dissatisfied and disinterested users.



There are numerous contributing factors as to how we have arrived at this point

- 1. Systems have been developed or adopted for different users.**
- 2. The development of these systems have been managed by different agencies with different objectives and priorities.**
- 3. Some of the applications were bought from various vendors with no ability to integrate or modify them.**
- 4. Many of the systems were developed with no requirement or plan for future connectivity or interoperability.**
- 5. It is difficult to turn away from the current investment.**
- 6. Users like shiny things.**



Commander's Intent or Goals and Objectives

- **Fully integrated - fair fight – interoperable – correlated – common – timely – accurate – realistic – immersive**



The Mission Preparation – Execution – Lessons Learned Cycle



The Starting Point (Jan 2000):

- **One Mission Planning System with the ability to calculate and load all data into the aircraft systems.**
- **Two Mission Preview Applications with three different data formats.**
- **Two partially Mission Rehearsal Capable simulators.**
- **A database development facility with limited production capabilities.**



Henry Kissinger once said that “Each success only buys an admission ticket to a more difficult problem.”



The Advanced Starting Point (March 2004):

- **Numerous Variations and Mutations of the “Common” Mission Planning Systems.**
- **Eight different Mission Preview Applications; each having their own capabilities, interfaces, data formats, and levels of integration with the other applications.**
- **Twenty four to thirty six virtual environment database formats; each having different data content, levels of resolution and coordinate systems.**
- **Over a dozen unique and mostly stand alone simulators; numerous databases, proprietary issues, concurrency issues, interoperability issues, connectivity issues, location issues and obsolescence issues.**
- **Three Program and Product Management agencies.**
- **Dispersed funding streams.**
- **An increase in users from Army Aviation Special Operations Forces to the full spectrum of Army, Air Force, Navy and Marine Special Operations Forces who operate across the Air, Ground, and Maritime environments.**
- **Operational command elements who always seek the good of the many over the good of one.**
- **Entrenched set of developers and vendors.**



Some of the basic principles include:

- 1. Achieve the graduated phases of correlation throughout all products being used for mission planning, preview, rehearsal, execution, debrief and training.**
- 2. Where the requirement is common, use a common solution.**
- 3. Develop and maintain a common architecture for the integration and connectivity of all systems.**



If you are a user or representative of a group of users:

- 1. Remember the audience; in this case that is yourself and those you work with. It is easy to get caught up in the development process and become comfortable with elaborate solutions in a sterile environment; remember the environment that the users will operate in.**
- 2. Document your requirements and expectations and then be an active participant in the development and integration process.**
- 3. Do not expect people who have never done your mission to understand the intricacies of your mission and how to improve your effectiveness unless you are willing and able to stay involved throughout the development and integration.**
- 4. Realize that the developer's ability to provide your required capability is very dependent upon the consistency of the requirement.**
- 5. Better is the enemy of good.**
- 6. Maintain your awareness of the other products that are being used and are being developed that the product being developed will have to work with. An integrated solution with a common interface is almost always better than a new idea.**
- 7. Understand that the Program or Product Manager is responsible for the Cost, Schedule and Performance aspects of meeting YOUR requirement. They are not responsible for being the expert at knowing what it will take to meet your requirement.**



If you are a systems developer or integrator:

- 1. Realize that finding a full understanding of the user requirements AFTER you are on contract is not a change in the requirements.**
- 2. It is okay to expect to make a FAIR profit. Your investors expect a fair return on their investment. That is Capitalism.**
- 3. It is not okay for you to expect the users to learn the way that your system works. You need to understand the way that the user works and modify your system to fit into their environment.**
- 4. Remember that your product is only one of many that the user must master in a very stressful environment.**



If you are a vendor of existing products

- 1. Realize that just because the product that you are selling is the absolute best solution for the problem that it was designed to address, that does not mean that it is the right solution to meet the user's requirements.**
- 2. Realize that a 70% solution that is integrated and sustainable with the other systems that the users have is far better from a user's perspective than a 100% solution that can not be integrated.**



And if you are a systems integration officer:

- 1. Realize that only after you understand the roles that everyone else plays in the overall process will you be able to coordinate all of their efforts into a teaming environment.**
- 2. Realize that once you become an effective Systems Integrator they will never let you go back to doing the mission.**



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