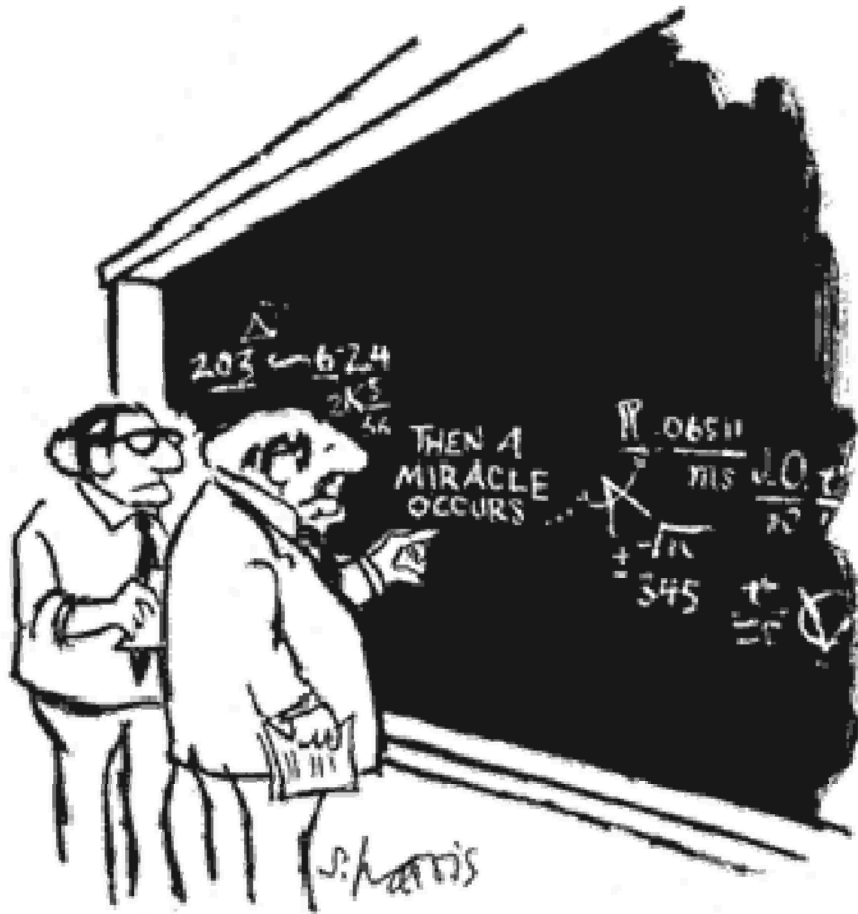


Technology Insertion in Space Ground Systems

Can We Do Better?

R. Donnelly
General Manager

Technology Insertion Constraints



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

Connecting the dots not as easy as it looks

Restricted by Operational concerns

Properly constrained by Security Concerns

Held hostage by acquisition processes

- Budget Process

- Oversight

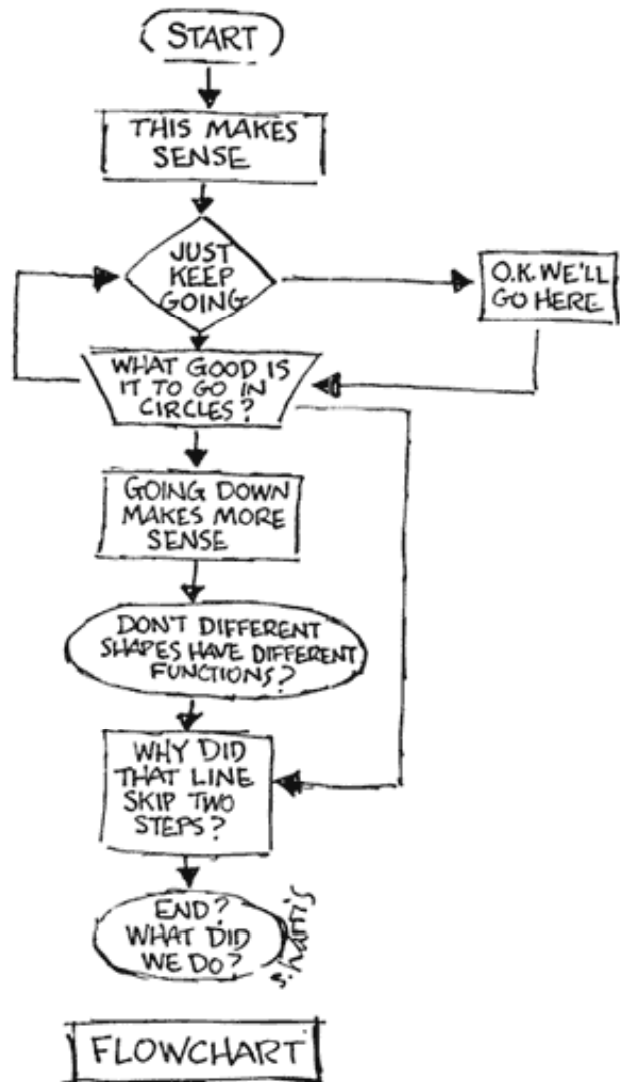
Technologists don't have intimate understanding of legacy systems

Can't fail with Spacecraft, Can't fail with Ground Systems?

The architect is a large committee



Technology Insertion Speed The Same Old Process



Existing Systems MUST continue to function

Old software on Newer ,Cheaper, Faster, hardware brings unknown risk

- Sometimes not possible

Forklift replacement also a risk, not well quantified or costed

Existing Contracts are on Cost Plus Basis

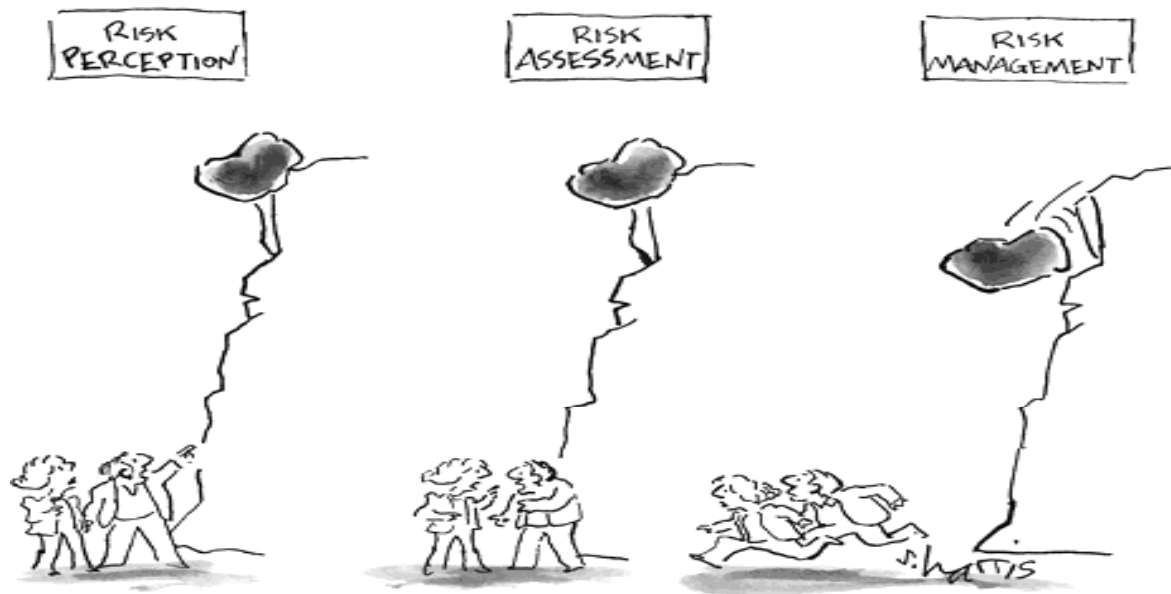
“Cost as an independent variable” for new technology insertion?

Acquisition organizations structured & trained for large waterfall developments



Technology Insertion Speed

The single greatest limiting factor?



Risk aversion overwhelms insertion speed.



Technology Insertion Speed Possible Ways Ahead



Changing the Acquisition Process

The Mac Ap Store Example

Collaborative Development
Environment or Pay on Performance

Build to Capabilities, not
Requirements

Accept that some changes **MUST**
follow the Old Slow, less risky
processes

Choose wisely, Indiana



Technology Insertion Speed

What could best help our partners and customers?



THE INTERACTIVE TOASTER

Clearly, Not Helpful

Partner and Customer Focused Technologies

Assisting early consumption and use

Enabling collaboration between acquirers and users

Build Some, Learn Some

Win Some, Lose Some

Build Small, Build Often

Develop oversight model to permit this



Technology Insertion

Imitation is the Sincerest Form of Flattery



And now in Google labs, they are testing an algorithm that predicts what I am going to search for next.

How does Google do it?

Experimental Lab and
Demonstration

Rigorous testing by Nooglers,
Googlers and sometime Zooglers

Our Equivalent?



Technology Insertion Speed Summary

- Many constraints
 - *Intrinsic*
 - *Imposed*
 - *Cultural*
- Manage, don't avoid risk
- Establish acquisition model(s) aligned with insertion
- Successful models do exist
- Set expectations with oversight

