

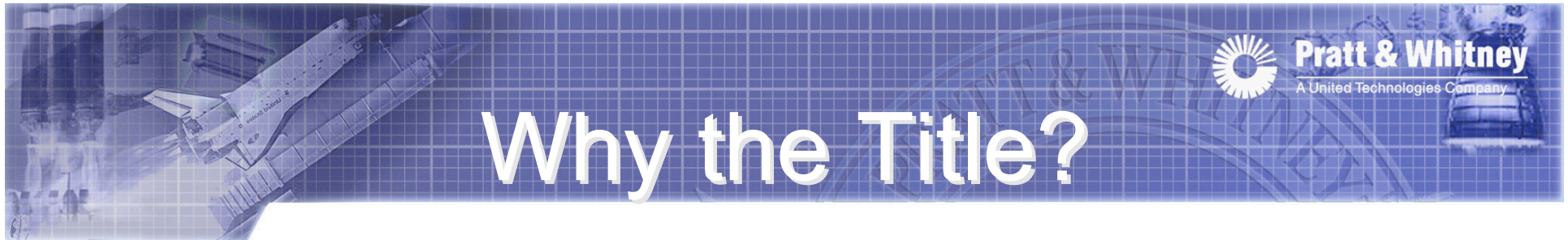


Entering the Holodeck

Tools and Culture for Knowledge Sharing

Rick Ladd, Ann Majchrzak, and Phil More

In2:InThinking Network 2007 Forum
April 13



- Star Trek – The Next Generation
 - November 12, 1989
 - “Booby Trap”
 - While attempting to solve a difficult engineering problem, the Chief Engineer re-creates models of the engines, the laboratory in which they were designed, and the Chief Designer.
 - By including personal records and a psychological profile, the Holodeck creates a “realistic” simulacrum of the Chief Designer.



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Why the Title?

- Technologies to do this don't yet exist, but:
 - Some intriguing concepts arise
 - Possibilities raised with the imaginative use of technology to develop knowledge sharing “devices”
 - Re-emergence of artificial intelligence as an inference engine and “fount” of wisdom
 - The mere existence of idealized forms of knowledge sharing may lead us to push technology and culture



- All great efforts begin with a vision
- The Holodeck is a metaphor for that vision
- If we can imagine it, it might be possible
- Current KM concepts & technology
 - Capture = Push
 - Access = Pull
- Tomorrow's concepts & technology must turn this on its head

The Design and Use of Focal Objects to Facilitate Rapid Cross-Boundary Innovation in Emergent Groups

Ann Majchrzak & Phil More
Professors of Management
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CIEGs

- Cross-boundary (cross-discipline, cross-organizational, cross-division, cross-function)
- Innovative problem-solving focused
- Emergent (no pre-existing roles, members come & go, changing environments)
- Groups

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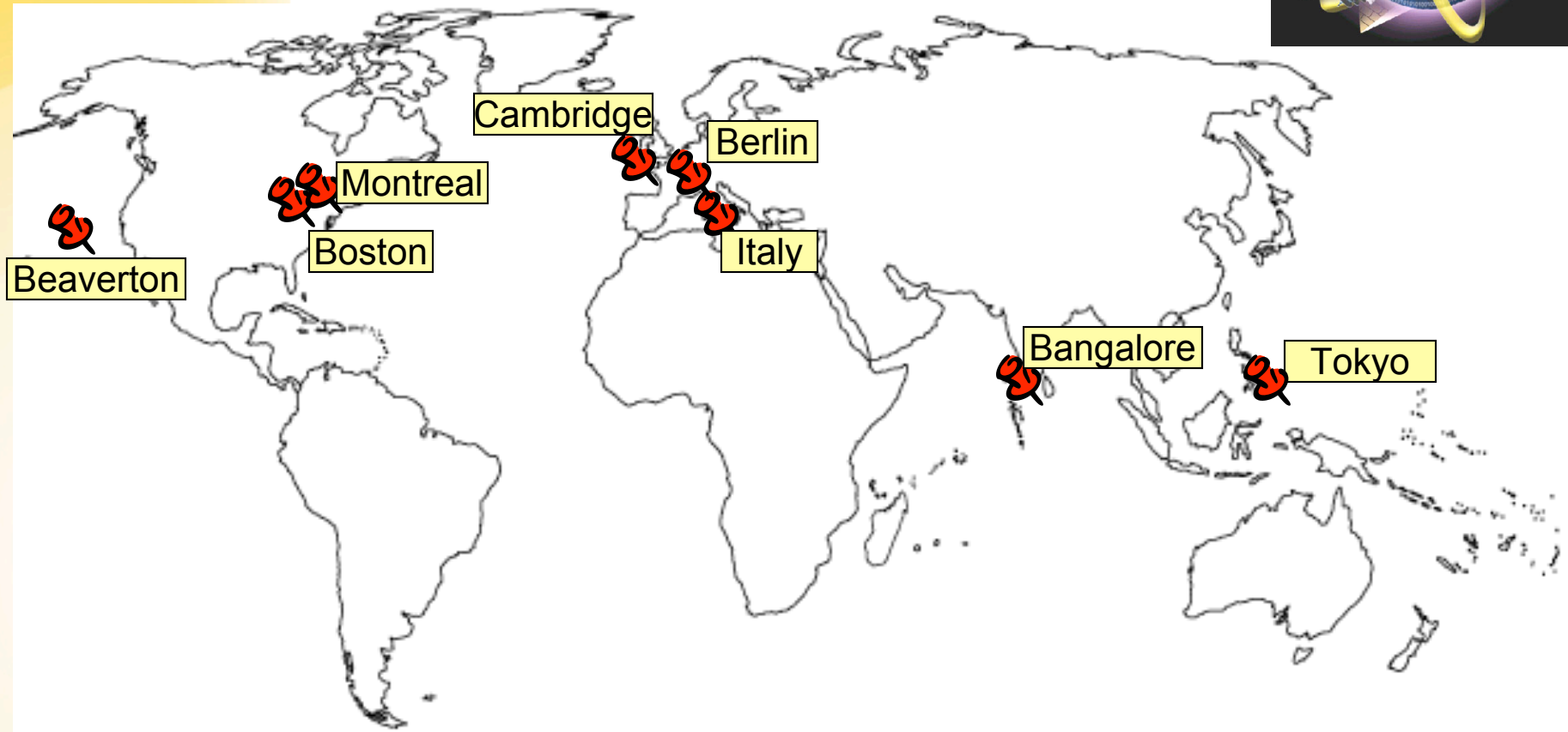
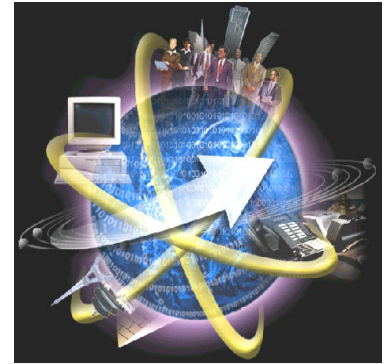
Examples of CIEGs

- Katrina emergent response groups
- SWAT groups
- China's process networks
- Some cross-organizational NPD teams
- Multi-agency groups to respond to terrorist threats
- Tall Ships

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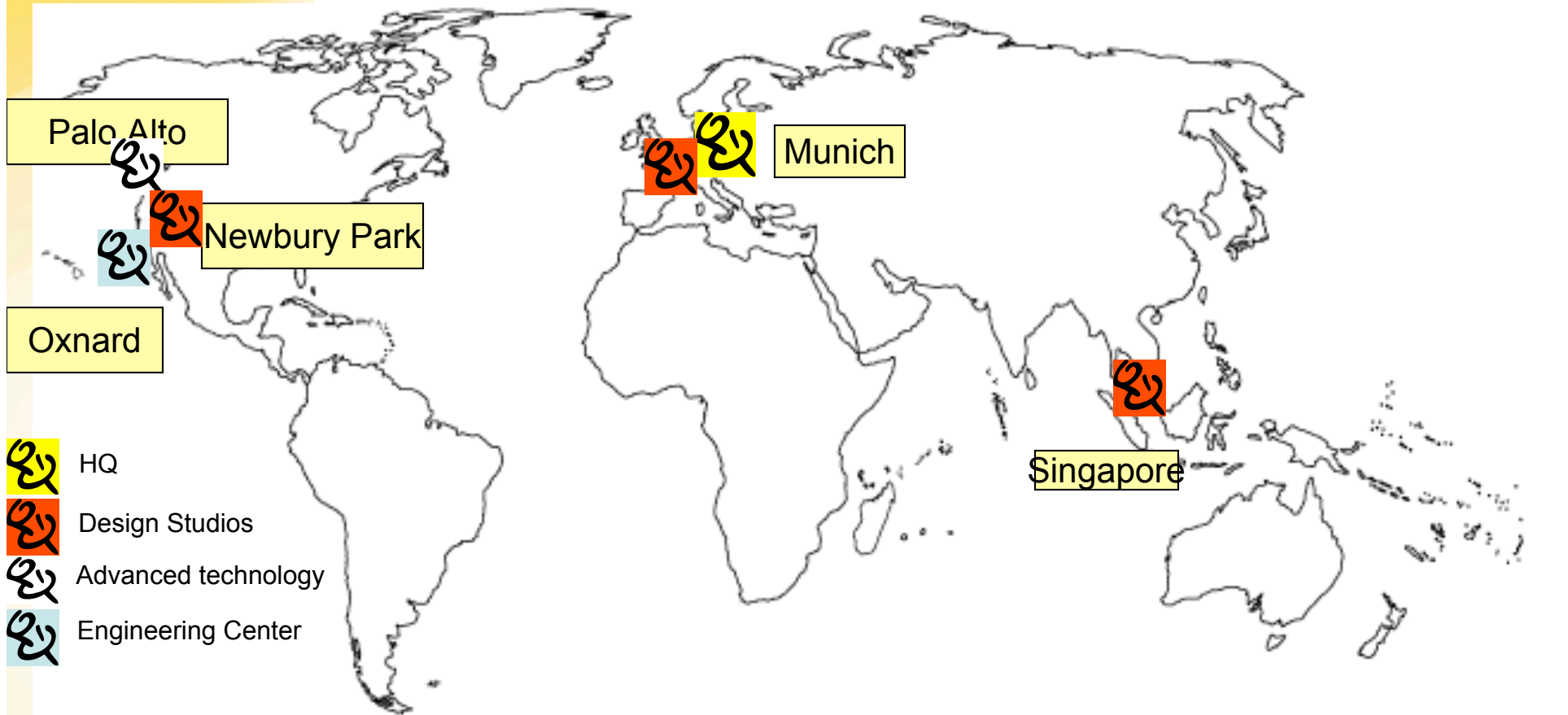
Example: Electronics Manufacturer



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AIM: Improving Virtual Team Processes in the Enterprise

Example: BMW



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CIEGs are challenged by:

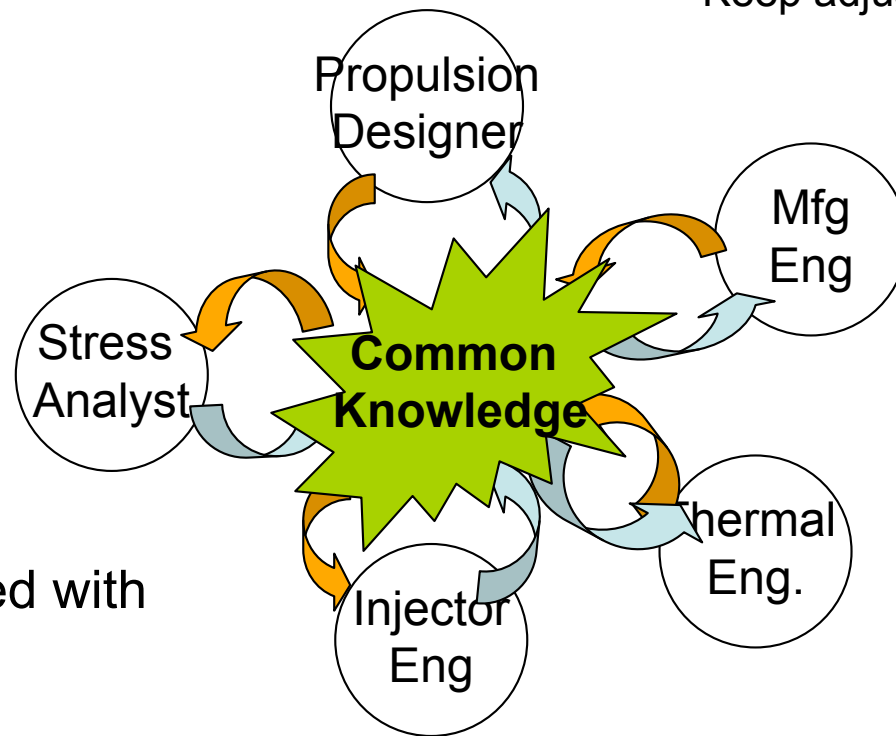
- Language differences
- No common work process
- Cultural differences
- Changing problem definitions
- Unfamiliar members
- Urgency
- Creativity-execution tradeoff

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To overcome challenges & still creatively use multiple perspectives:

- Learn from each other
- Quickly create common ground
- Keep adjusting common & local knowledge



...a process facilitated with
focal objects

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What are Focal Objects?

- Metaphors or physical artifacts (like prototypes) that establish a common ground across boundaries
- Examples:
 - Tall ships
 - Clay renderings of new cars
 - Washing machine agitator metaphor



Baseline Exercise 1: What focal objects do you use to cross boundaries?

In groups of 4, design an information system to help people cook at home playing either:

- 1) Average consumer
- 2) Rep of the Services & Repair Division
- 3) Mfg Eng
- 4) Design Engineer

PLEASE STAY IN ROLE

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Exercise 1 Debrief

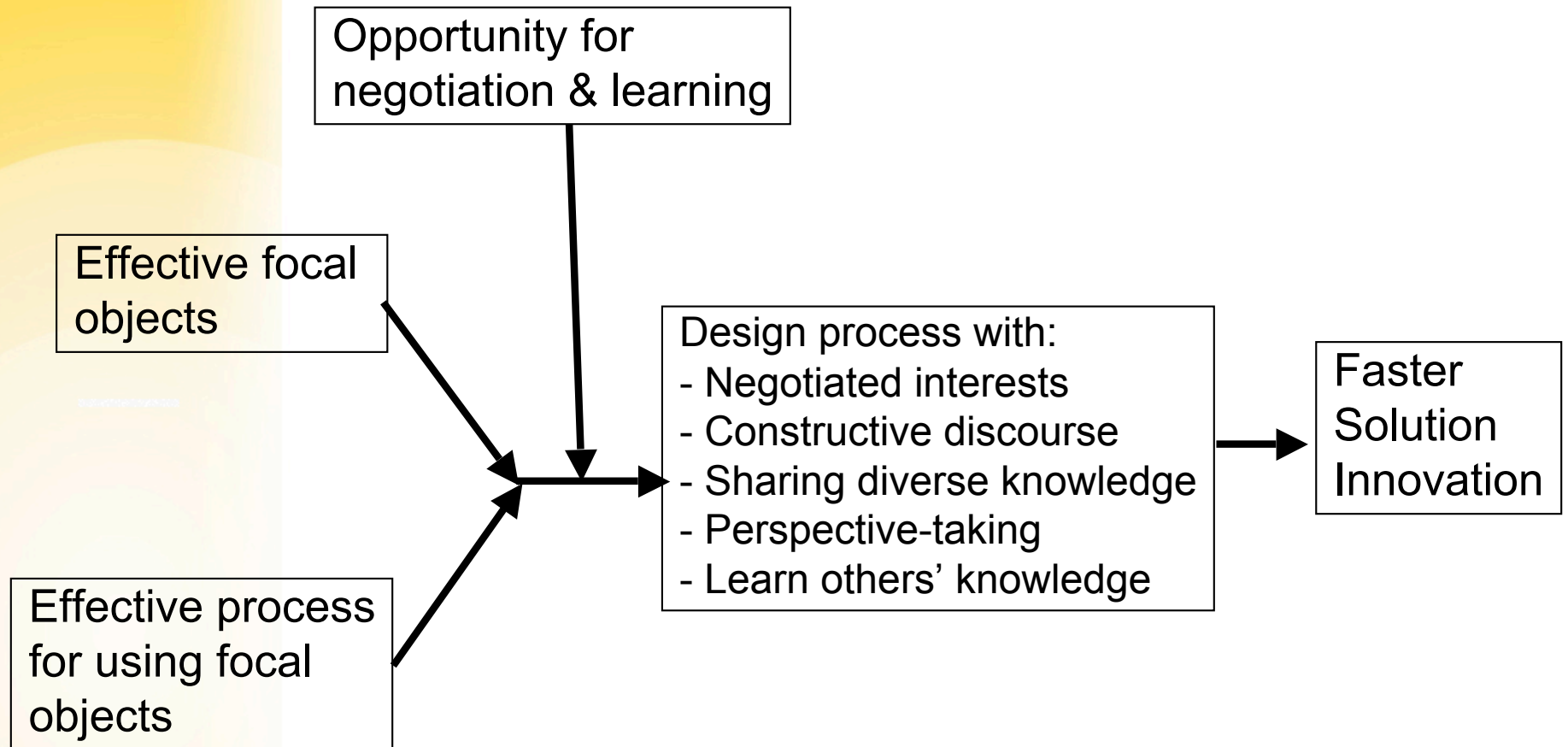
- What characteristics of the focal object made it work for communicating across the roles?
- How did your design process incorporate the focal object?
- What didn't work?



Our Framework

- Design requires
 - Learning-by-doing and
 - Negotiating differences
- So focal objects need to facilitate both
- Design involves both:
 - Creation of focal objects
 - Use of focal objects





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Propositions about Effective

Focal Objects

- Includes detail from each discipline
- Clarifies scope of problem
- Leaves room for “local” tailoring
- Can be easily revised
- Shows precise effects of proposed revisions
- Encourages playfulness
- Manages large amounts of info with minimalism
- Keeps common desired outcomes clear
- Includes metaphor that explains structure of key constructs
- Identifies dependencies, constraints & differences between disciplines
- Identifies possible areas of novelty

Objects

Process for Using Focal

Rapid frequent feedback:

- In small chunks
- Focused on problem solving strategy not solution
- Use of examples to transfer between local and common knowledge
- Mini-lectures (<2mins)
- Action-oriented guidance
- Iterations made to focal object not air
- Perspective-taking
- Learning monitor
- Review focal object to identify if any perspectives missing
- Review focal object to identify unstated assumptions

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Exercise 2: Practice Propositions

- Design in a new group of 4 a kiosk to facilitate the purchase of business clothes
- Play either:
 - Customer
 - Design engineer
 - Manufacturing engineer
 - Retail owner who will be maintaining kiosk

Please use our Propositions & stay in role

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Exercise 2 Debrief

- Evaluate propositions:
 - Which worked
 - Which didn't
 - New propositions you would suggest



Opportunity for negotiation & learning:

- Commitment to resolve differences within team
- Swift trust
- Decentralized authority within group
- Reciprocal interdependence
- Equal commitment to outcomes
- Sense of urgency to resolve differences

Focal Objects
Need the
Right
Opportunity

Effective focal
objects

Effective process
for using focal
objects

Design process with:

- Negotiated interests
- Constructive discourse
- Sharing diverse knowledge
- Perspective-taking
- Learn others' knowledge

Faster
Solution
Innovation

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Tool Demonstration

- AskMe
 - COTS Expert/Expertise Location System, with customized additional functionality for PWR
- Quindi
 - Automatically captures PowerPoint slides, synchronized with audio, video (if desired), and notes for meeting capture and sharing

Would you like to participate in our research?

Year 1 (starting June 07): Observations of CIEGs to see if propositions correct

Year 2: Survey of CIEGs to test propositions

Year 3: Train CIEGs on use of focal objects & track benefits

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