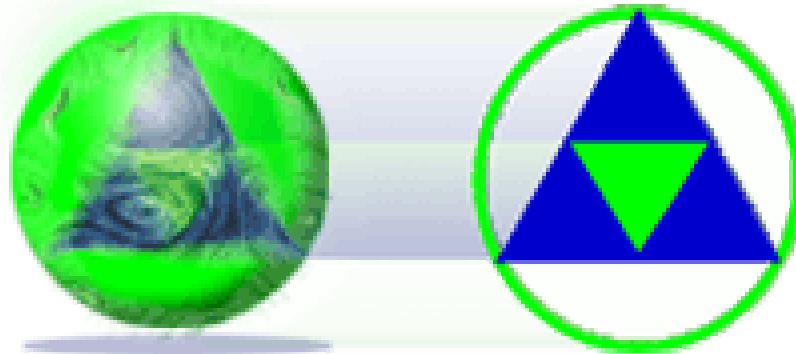
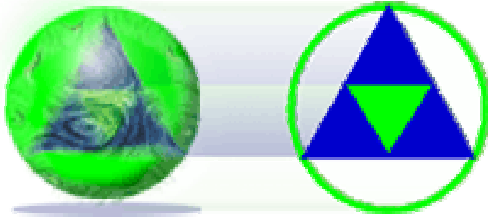


An Online Knowledge Base for Sustainable Military Facilities & Infrastructure

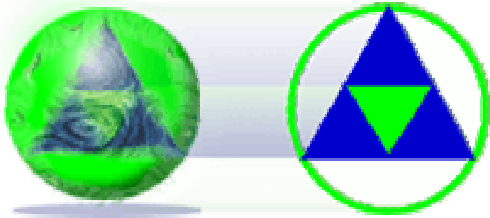


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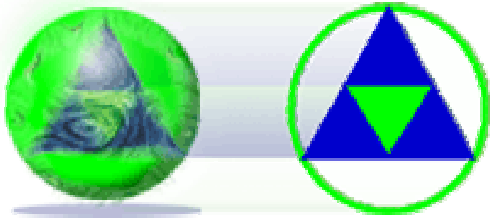
Overview

- The Need
- Georgia Tech's Proposed Solution
 - Components
 - Development approach
- Expected Outcomes
- Benefits and Impacts
 - To users
 - To Region IV DoD P2 Partnership
- Issues for Further Discussion



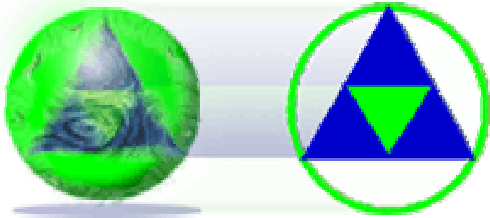
The Need

- Project stakeholders interested in sustainability are:
 - Overwhelmed by information
 - Lacking in slack resources (time, money, staff)
 - Subject to rigid project delivery constraints
- They need a way to:
 - Identify relevant strategies quickly
 - Evaluate potential sustainability impacts
 - Assess potential costs and benefits



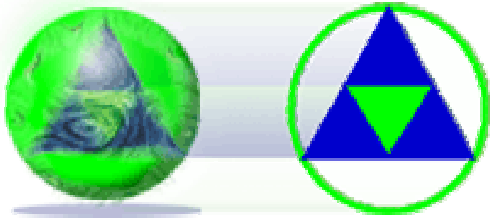
Proposed Solution

- Knowledge Base Components:
 - Project Documentation Data Structure and Protocol
 - Case Study Database
 - Framework for Comprehensive Cost/Benefit Analysis (CCBA)
 - Job-Specific Guidelines for Sustainability Implementation
 - Best Practices Database
 - Systems-Based Sustainability Simulator

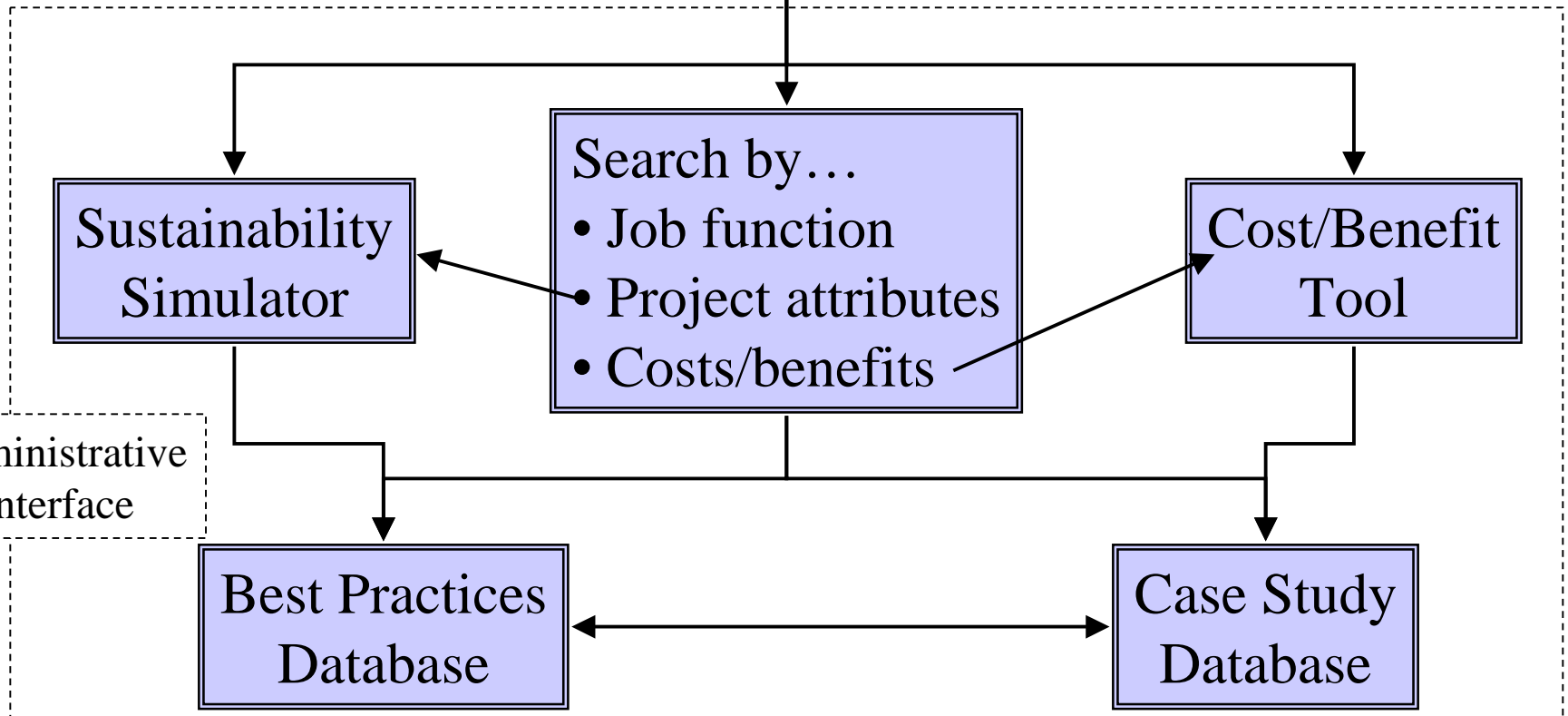
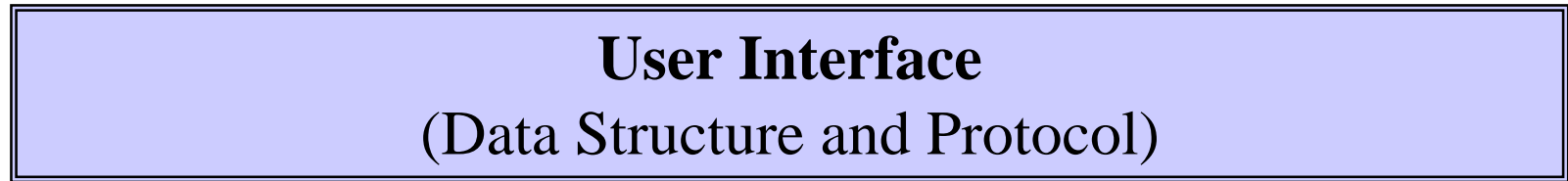


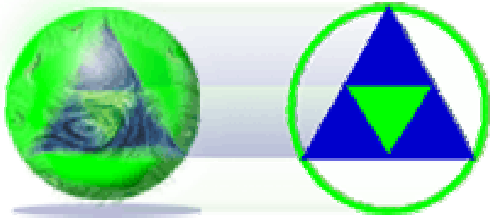
Proposed Solution: Functional Attributes

- Users can use the online knowledge base to:
 - Model their project situation
 - Search for ideas by job function, project attributes, and/or potential costs and benefits
 - Create scenarios to model the impacts of potential best practice strategies
 - Identify potential costs/benefits, and find rules of thumb and similar examples to estimate their impacts
 - Link ideas to real project case studies and other more detailed information
 - Capture and document information and experiences that describe their projects



Proposed Solution: System Architecture

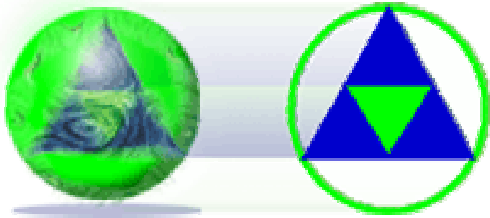




User Interface

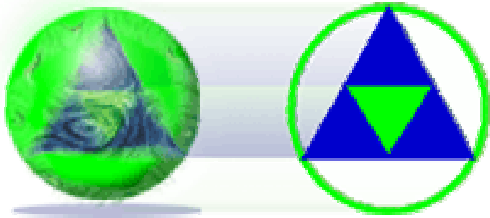
(data structure and protocol)

- **Functionality:**
 - Users create accounts, log in, and create models of their project situations
 - Forms provide a consistent data structure, with instructions on what data to get and how to document it
 - Case studies show examples of correct project information entry
- **Approach:**
 - Review existing case studies to develop a comprehensive project data structure
 - Develop and user test interface for modeling projects and capturing project information
 - Link to other system modules



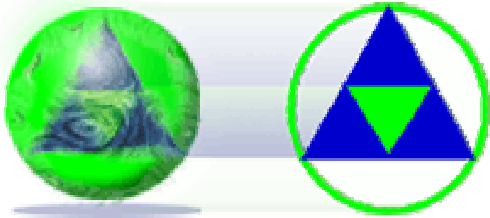
Best Practices Database

- **Functionality:**
 - Database of best practices in statement form, with hyperlinks to drill-down technical information
 - Searchable by sustainability impact, job function, project attributes, and costs/benefits
 - Linked to case studies where they are used
- **Approach:**
 - Builds upon Georgia Tech's existing heuristics database - over 7,000 heuristics
 - Review heuristics for appropriateness on MILCON projects
 - Code by impact, job function, project attributes, and costs/benefits
 - Link to case studies



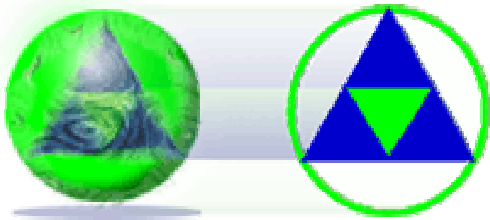
Case Study Database

- **Functionality:**
 - Database of case study information in standardized format (using project documentation protocol)
 - Users can identify real projects in which best practices have been used, and compare information
- **Approach:**
 - Review literature for existing military case studies
 - Format project information using project documentation protocol; code for retrieval and link to best practices database
 - Fill in gaps via phone interviews
 - Add other cases as time permits



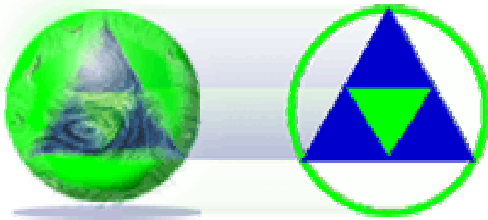
Sustainability Simulator

- **Functionality:**
 - Users can model projects in terms of flows of matter/energy
 - Returns relevant best practices with links to case studies
 - User selects best practices of interest
 - System returns a model of the sustainability effects of those practices
- **Approach:**
 - Build on existing prototype model developed by Georgia Tech
 - Add additional filtering criteria to allow users to sort/prune list of best practices



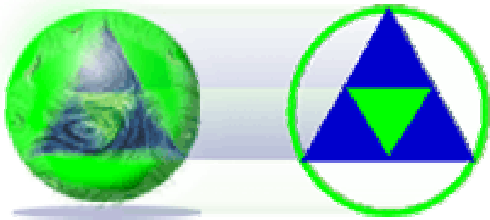
Cost/Benefit Tool

- **Functionality:**
 - Identifies non-traditional costs/benefits associated with selected best practices or project attributes
 - Links to case studies where such costs/benefits have been documented
 - References appropriate heuristics for estimating cost/benefit impacts
- **Approach:**
 - Review case study database to identify documented cost/benefit categories
 - Review methodological literature to develop heuristics for estimating cost/benefit impacts
 - Code best practices and case studies according to most likely cost/benefits



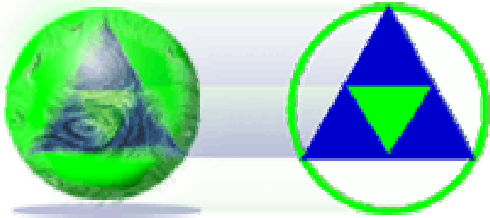
Search Functions

- **Functionality:**
 - Users can search by job function, project attributes, or desired cost/benefit impacts
 - Returns applicable best practices and links to related case studies
 - Connected to sustainability simulator and cost/benefit tool to permit impact modeling
- **Approach:**
 - Pilot interviews to develop RACI matrix questionnaire
 - RACI matrix used to define job functions
 - Best practices and case studies characterized in terms of quantitative and qualitative cost/benefit impacts



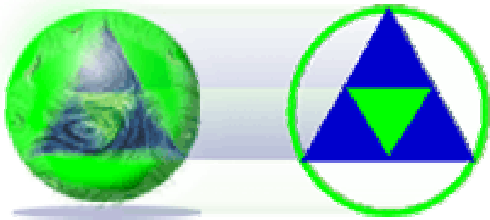
Administrator Interface

- Functionality:
 - Manage user accounts (user data is captured)
 - Manage/add best practices and case studies and code their impacts
 - Control defaults for different kinds of project scenarios (e.g., facility type, typical sources and sinks, etc.)
- Approach:
 - Develop admin interface concurrently with system modules to allow entry and adjustment of data and testing of modeling and search algorithms



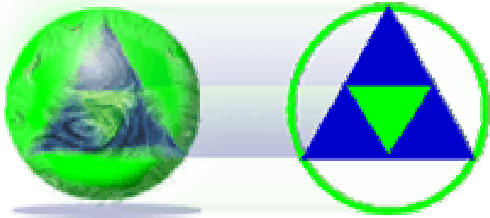
Expected Outcome

- A functioning prototype system, populated with military and civilian data, that allows users to:
 - Establish account and log in
 - Create baseline model(s) of project(s)
 - Search case study and best practice databases
 - Run multiple scenarios that involve iteration of identifying best practices, choosing ones to investigate, and modeling their effects
 - Review relevant case studies and learn anecdotally from others' experiences
 - Capture their own project experiences



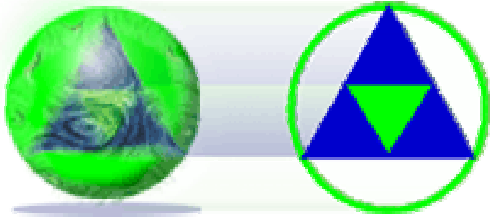
Benefits and Impacts

- Benefits to the user:
 - System acts as a filter to retrieve only information relevant for project and of interest to user, avoiding information overload and saving valuable time
 - System provides a reality check when considering best practice options early in project planning by highlighting cost/benefit tradeoffs
 - Convenient way to hierarchically explore information on sustainability strategies; from shallow to deep
 - Provides links to real project case studies, increasing user confidence, facilitating innovation, and mitigating risk



Benefits and Impacts

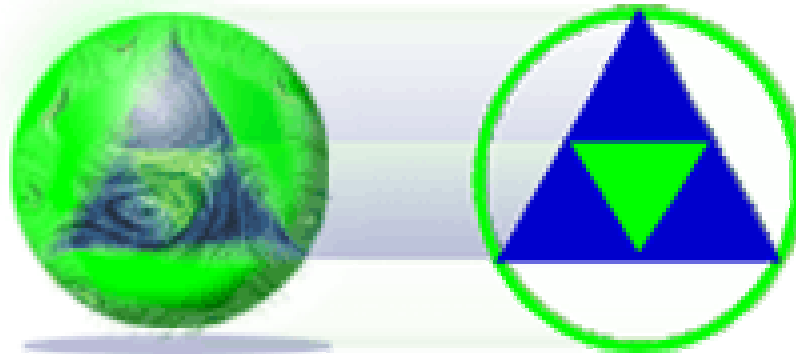
- Benefits to the Region IV DoD P2 Partnership:
 - Consistent data structure for capturing project information in Region IV and beyond, for both military and civilian projects
 - Web-based tool accessible worldwide on multiple platforms
 - All user data is collected and maintained to provide information on how stakeholders make decisions
 - Administrative interface allows for easy updating of knowledge base components



Issues for Further Discussion

- Volunteers for interviews and surveys at local installations?
- Volunteers for system beta testing and usability tests?
- Ongoing system maintenance and administration?
- Future data maintenance and updating?

Thank you! Any questions?



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