



Integrated Battle Command Program

Decision Support Tools for Planning and Managing Unified Campaigns in Complex Contingencies



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Goal: Enable US Commanders to Design and Manage Future Intervention Campaigns



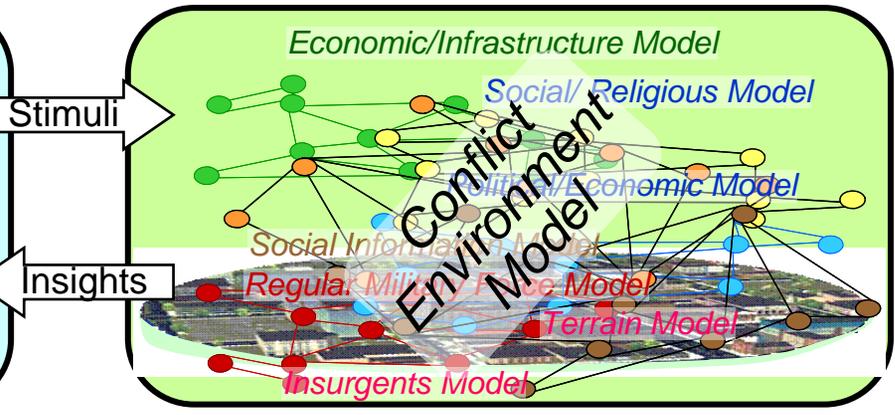
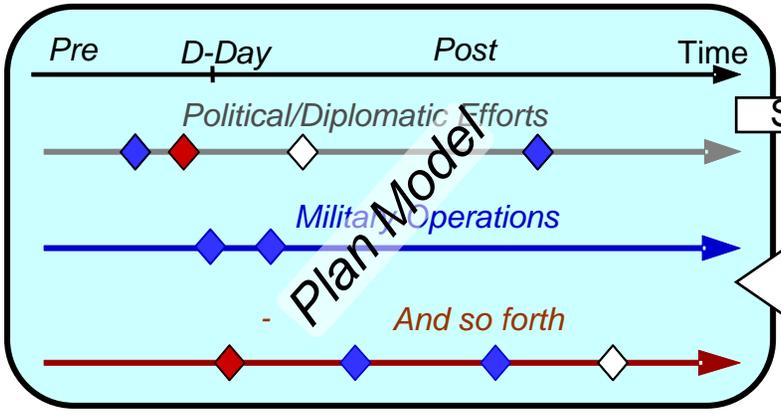
For
 ■ Commanders
 ■ Planners
 ■ Analysts
 At the Operational Level



Capability to plan the integration of efforts

Capability to explore options and consequences

Capability to visualize plans and options



Tool Box for unified campaign planning in complex contingencies

Designing Intervention Campaigns



Unified Actions
 Diplomatic
 Information
 Military
 Economic
 Other

Integrated and Interdependent



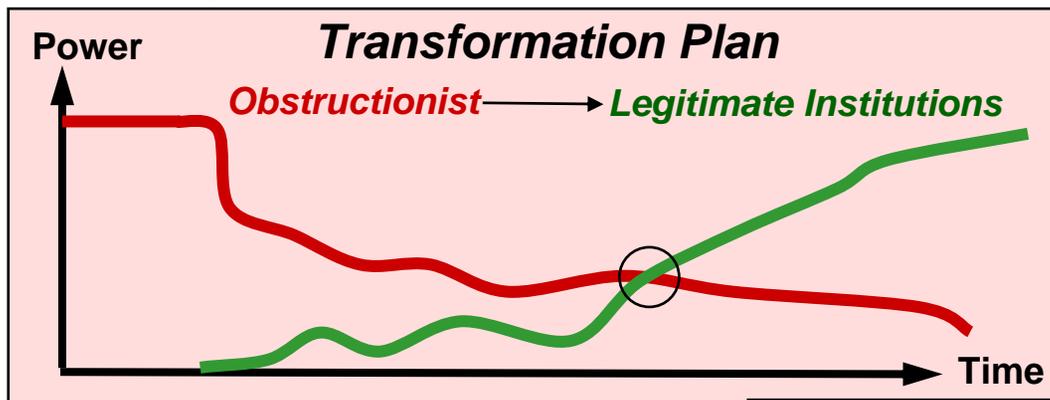
The Conflict Environment

Synergistic and Reinforcing



Integrated Effects
 Political
 Military
 Economic
 Social
 Information
 Infrastructure
 Other

Whole of government approach to interventions

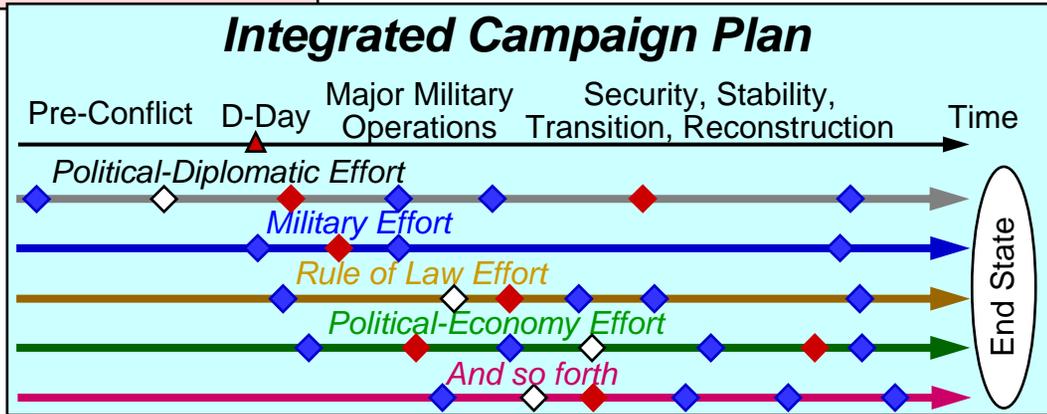
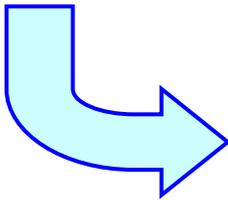


Theory being developed by JFCOM/DARPA Mentors

Intervention is not about totally defeating the opponent (a Nation-State or Decentralized Networked Threat)

Its about transferring power from a hostile regime to a friendly and democratic regime using all forms of national power available . . . while minimizing the undesired consequences and effects

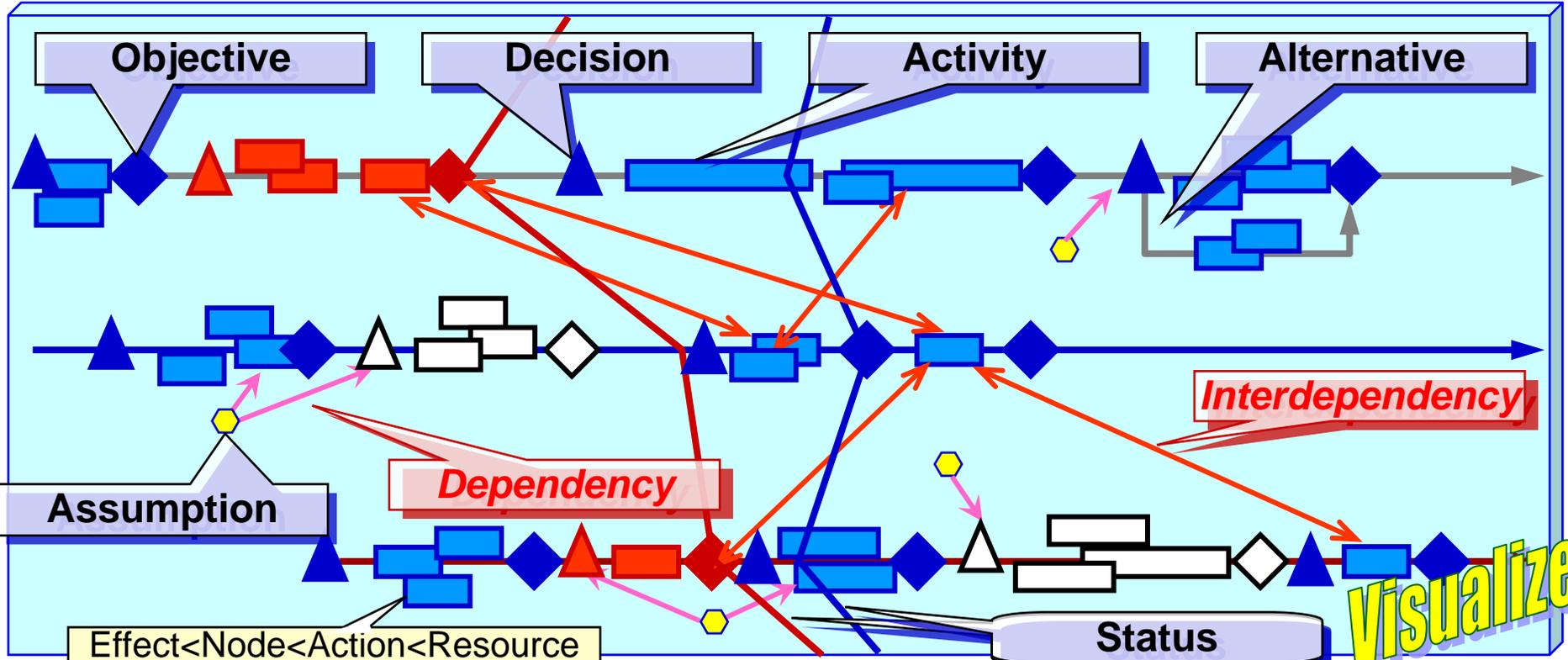
Achievement of multiple integrated and interdependent/mutually supporting objectives to shape the environment



Sources
 • The Quest for Viable Peace: International Intervention and Strategies for Conflict Transformation, Jock Covey, Michael Dzedzic and Leonard Hawley, editors, United States Institute of Peace Press, May 2005
 • Capstone Concept for Joint Operations, DoD, August 2005

Problem: How to get from the theory to a workable plan?

Campaign Planning Tool



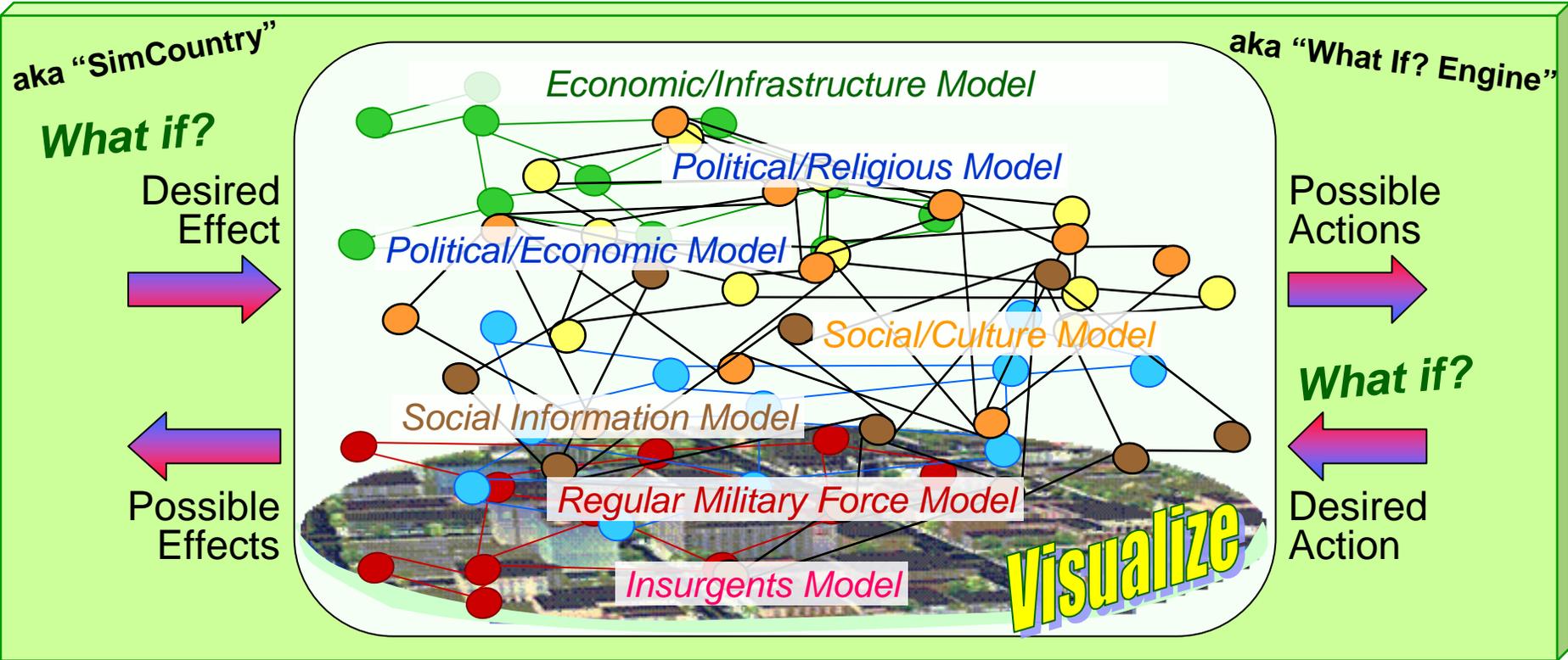
Purpose: manage
 n Objectives
 m Activities/Actions
 ⇒ **~O(n•m factorial)**
Interdependencies
 + i Decisions
 + j Alternatives
 + k Assumptions
 + l Dependencies

- Supports authoring of multiple lines of effort
- Automatically detects and manages interdependencies and dependencies
- Allows user to “cut and paste” plan elements and rapidly repair plans
- Supports user in monitoring success

Dynamic Plan Model

Integrated planning requires tools to synchronize and deconflict actions

Option Exploration Tool



Purpose: generate the "distribution of all plausible outcomes," not a precise prediction

- Provides a family of models spanning the relevant DIME/PMESII domain
- Automatically forces models to interact to suggest plausible activities and outcomes
- Allows bi directional and multi sided analysis

What if? Engine

Integrated planning requires tools to explore all options and consequences

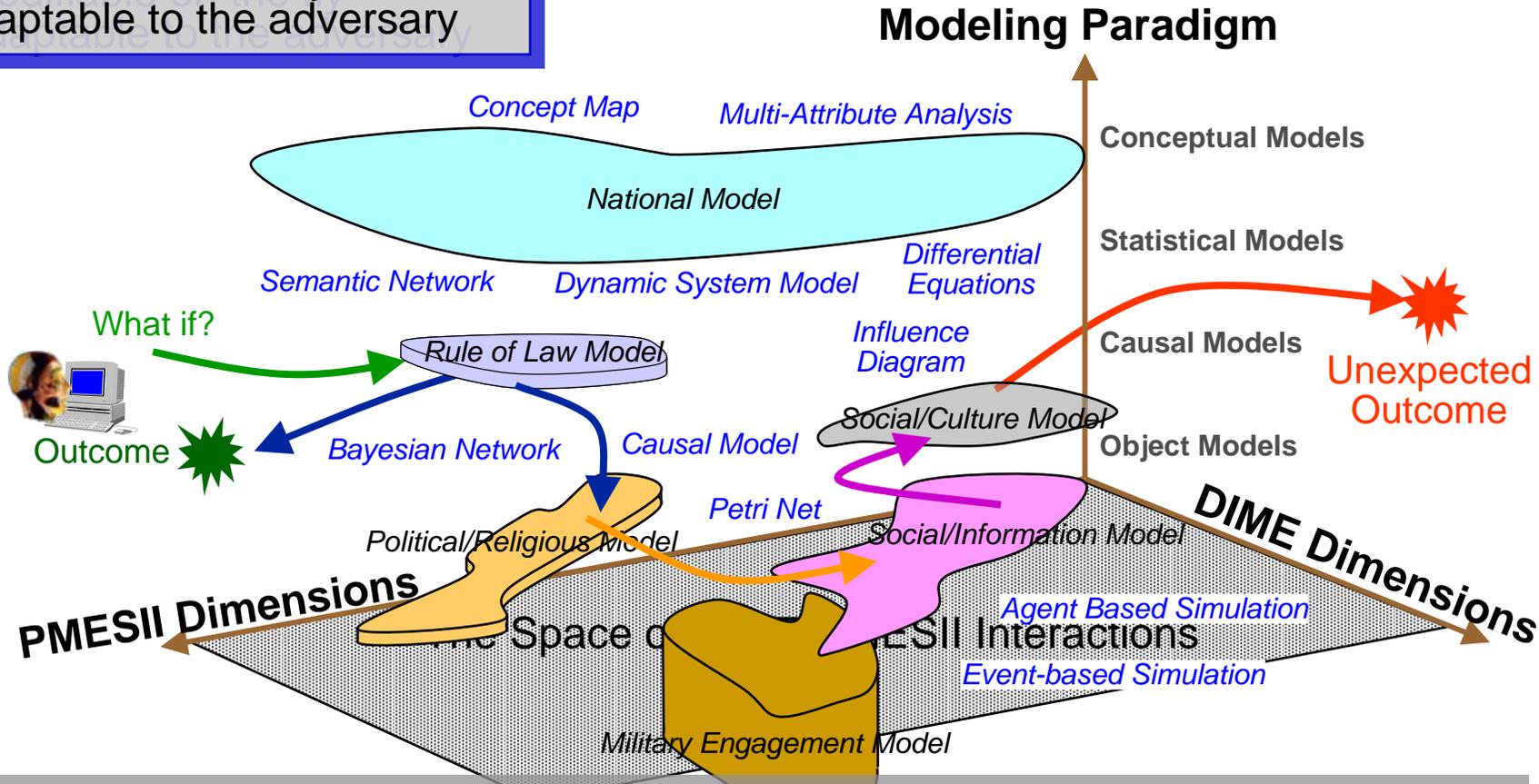
Modeling Post Modern Conflicts



Models must:

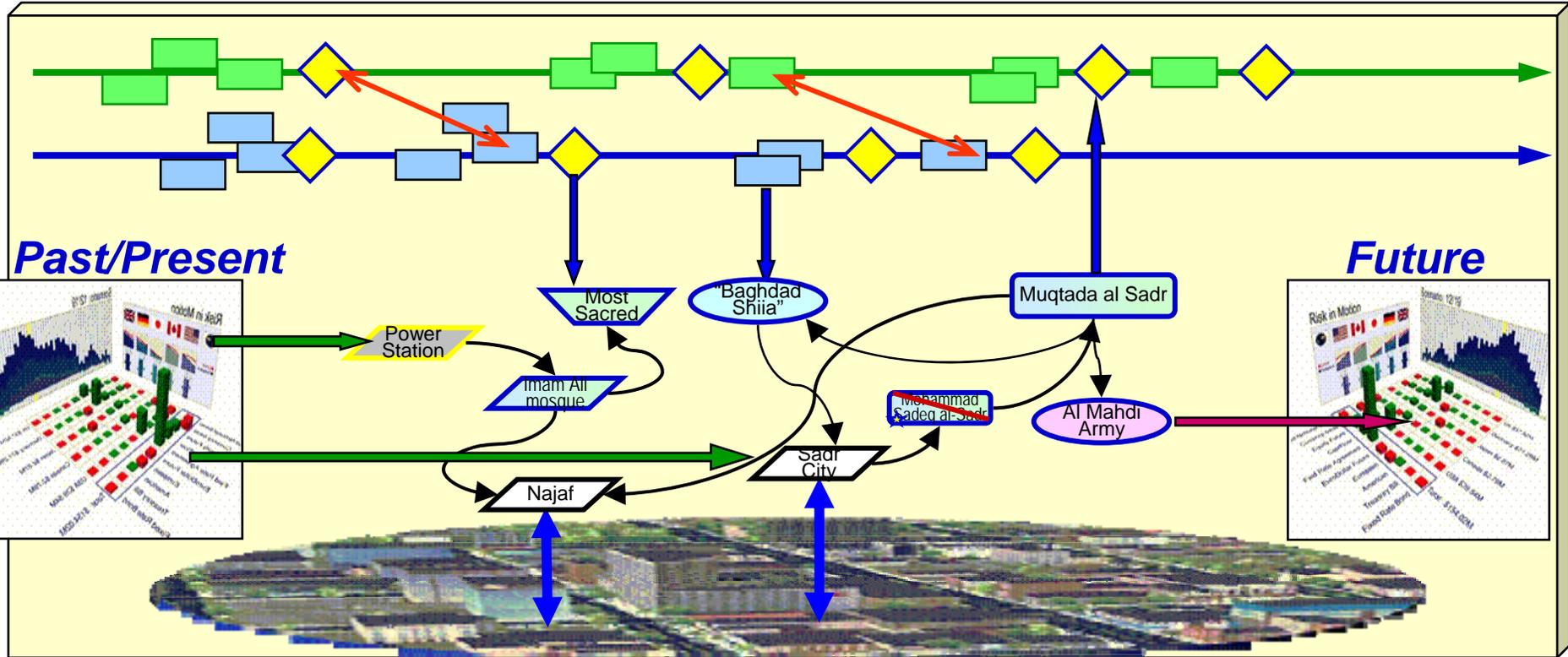
- Span the DIME/PMESII domain
- Be selectable/tailorable
- Be sufficiently detailed
- Be modifiable on the fly
- Be adaptable to the adversary

- No single model or modeling paradigm can completely describe the entire domain
- A family of models is needed!



Each model should provide **surprising**, yet legitimate and plausible outcomes
 The family of models should provide **astonishing**, yet legitimate and plausible outcomes

Special Challenge: *Visualization*

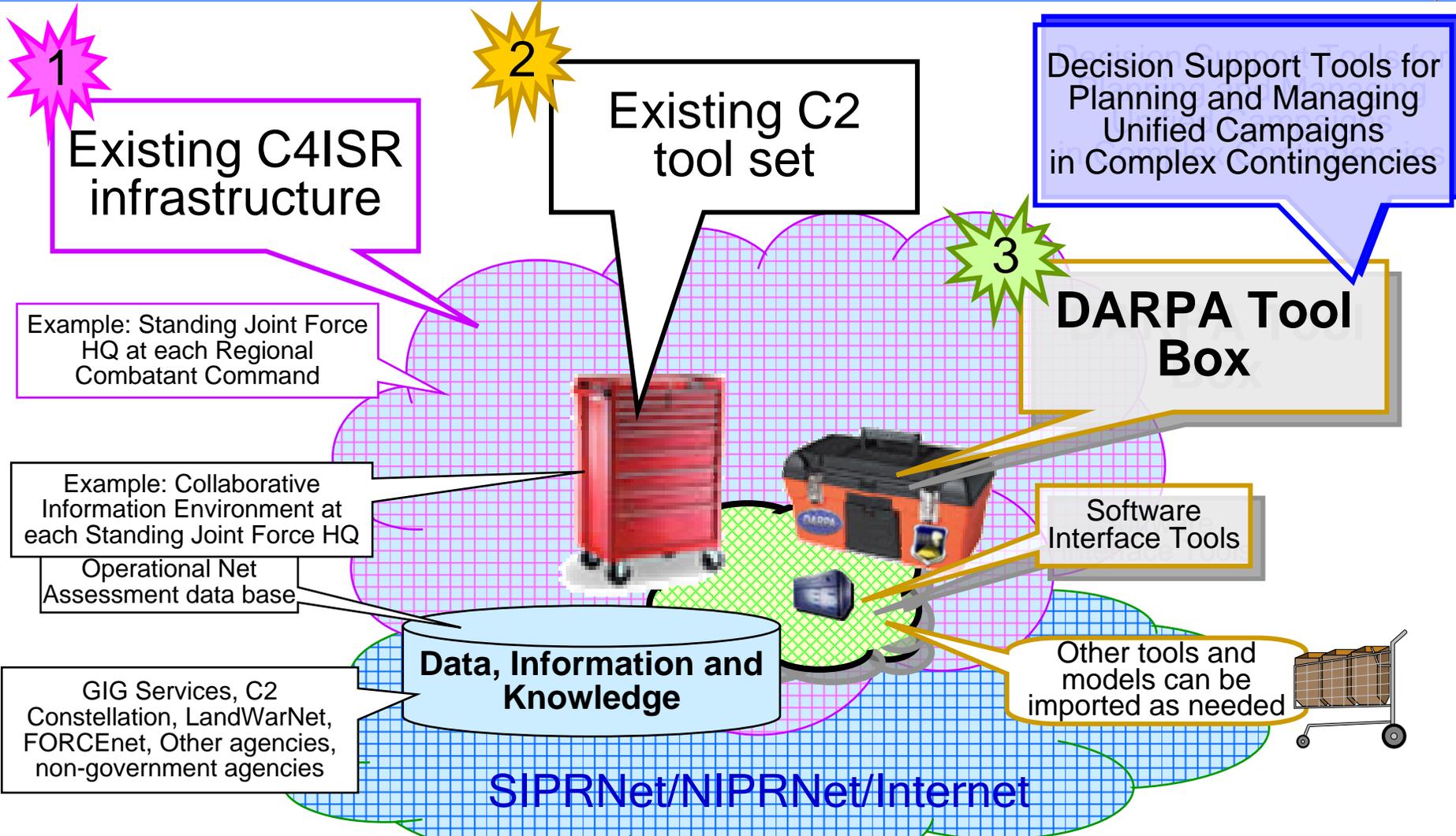


Purpose: provide a comprehensible, shared view of the plan and options

- Graphically describes the plan with all of its dependencies and interdependencies
- Graphically displays the modeled view of the conflict environment (past/present) and suggested future views and the model connections

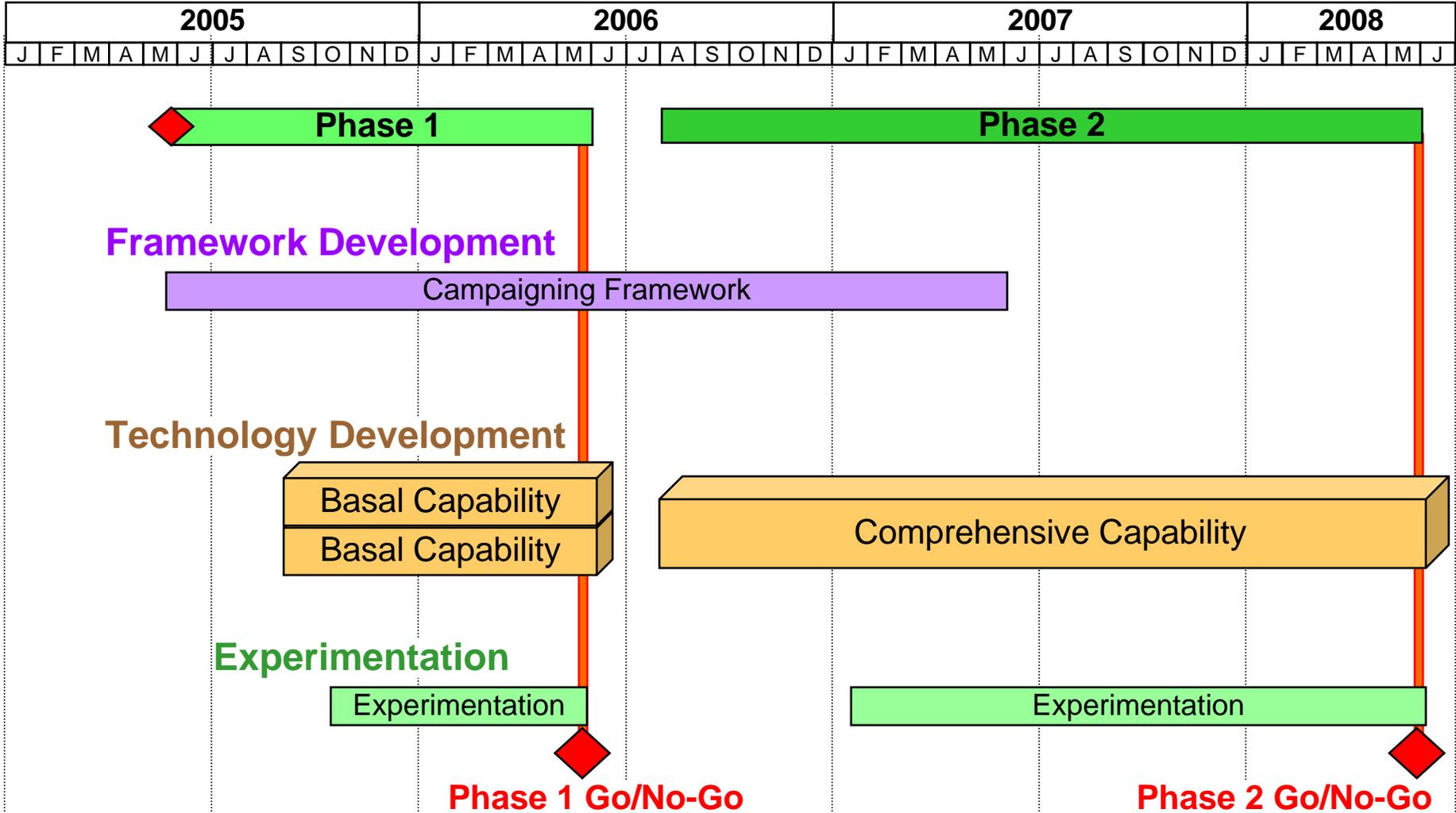
Decision aids require exquisite visualization of the interactions and reasons

A new Tool Box, not a New System



Advanced Tool Box for Effects Based Campaign Planning and Execution

Technical Campaign Plan



Two phase, experiments based program

Phase 1 Results



- Human-machine interfaces, particularly the visualization capabilities, must be able to be tailored to the role of the user
- Extant technologies for modeling PMESII systems are abundant and sufficient
- A hierarchy of models is needed
- Generic models provide users with insight into trends but not specific guidance
- Detailed, in-depth models, instantiated to portray real people, places, organizations etc., are preferred to develop plans
- The family of interacting models produces large numbers of suggested, plausible outcomes which is often difficult to understand
- A suite of loosely coupled models is difficult to employ - when the environment is partitioned, the interactions between partitions are difficult for the human to determine
- Visualization techniques which reduce the dimensionality of data are essential for understanding the complexity of the outcomes that can be generated by models.

DARPA and JFCOM are working closely and will rapidly transition the technologies to the combatant commands