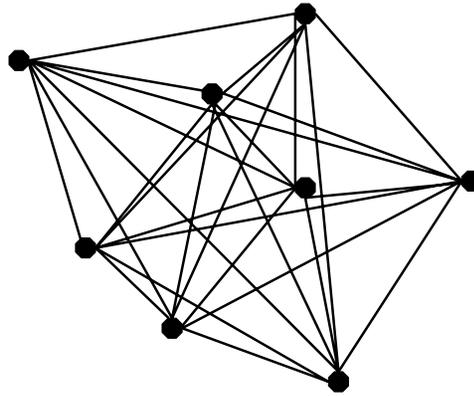


(Unintended) Effects Based Operations: Dealing with Secondary Effects



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The Problem

To alter the state of a system, it is necessary to understand the interactions of the elements that make up the system.

It is impossible to change one element of the system without affecting the remaining elements.

Robert Jervis, "Complexity and the Analysis of Political and Social Life," 1998

Objective of this Paper

To contribute to:

1. an understanding of intellectual and logical foundations of a systems based approach;
and,
2. recognition of the importance of secondary effects to successful utilization of an effects based approach to operations

The Need for an Improved Approach to Assessments

Assessments that consider the elements of political, economic, military, and social power as separate and distinct entities do not adequately present the holistic view.

A segmented and linear view of the adversary can lead to an inability to anticipate secondary effects that occur beyond system boundaries.

A calculus that considers the political, economic, military, and social systems as interrelated elements of an overall system of power, which (importantly) is different from the sum of the parts, is critical to the assessment.

Hypothesis

If elements of national power are nonlinear and complex; *and*,

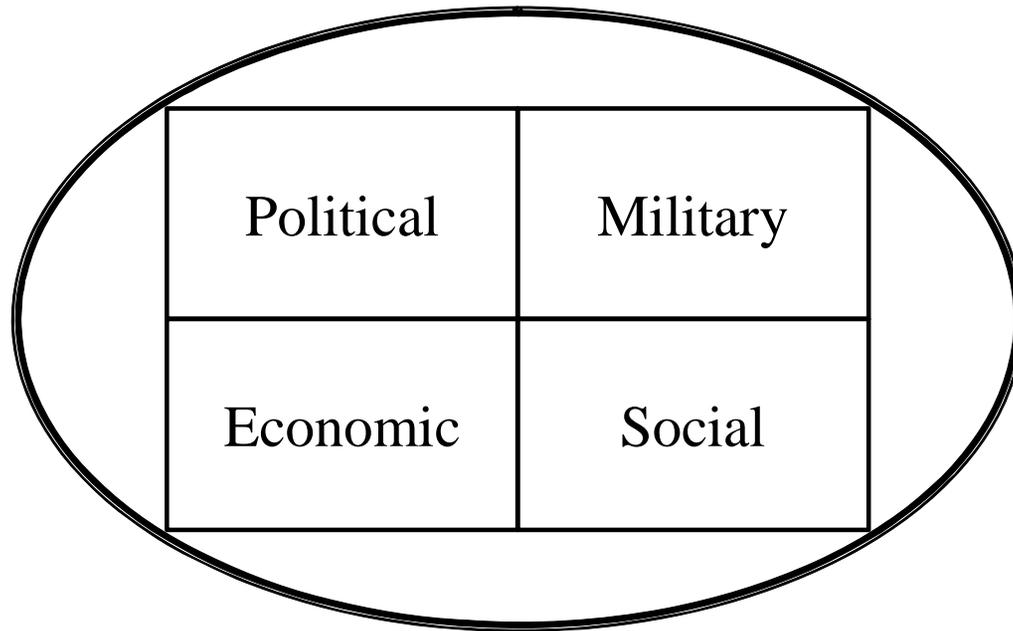
if approaches developed in mathematics and the physical sciences provide a means of enhanced understanding of nonlinear systems;

then, utilization of such an approach may provide a metaphor or model for increased understanding of the system and the secondary effects of actions taken.

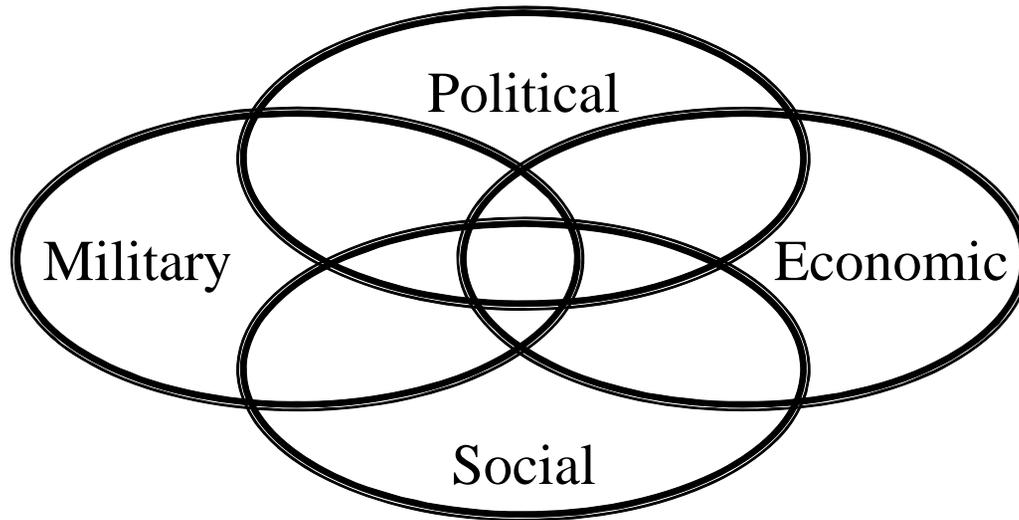
Premises

1. Nations, and some non-state actors, can be described as complex adaptive systems
2. An action taken to influence a complex adaptive system will also produce secondary effects
3. A system of systems analysis provides a means for anticipation of secondary effects

Reductionist Approach



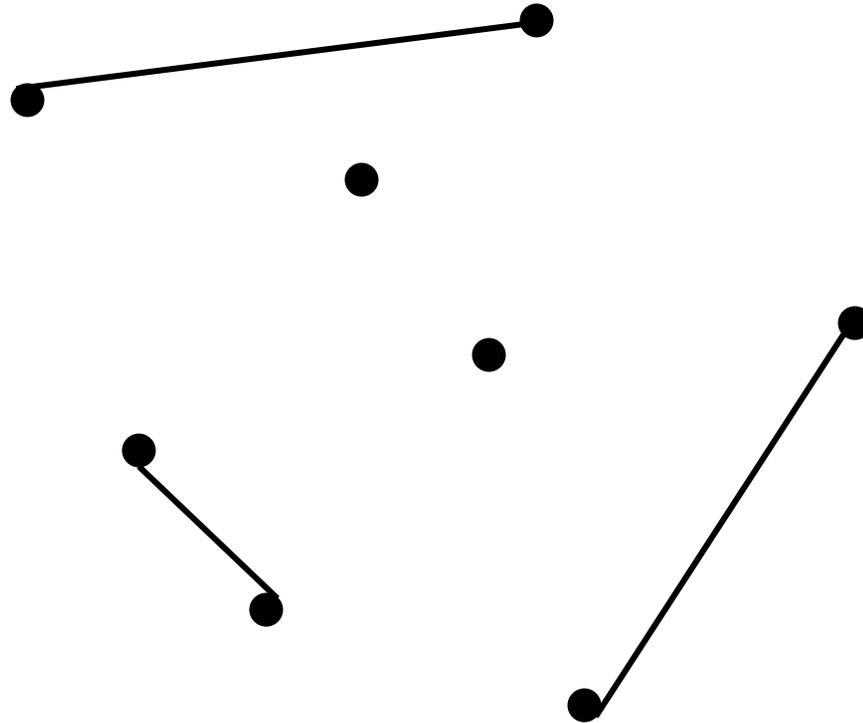
Systems Approach



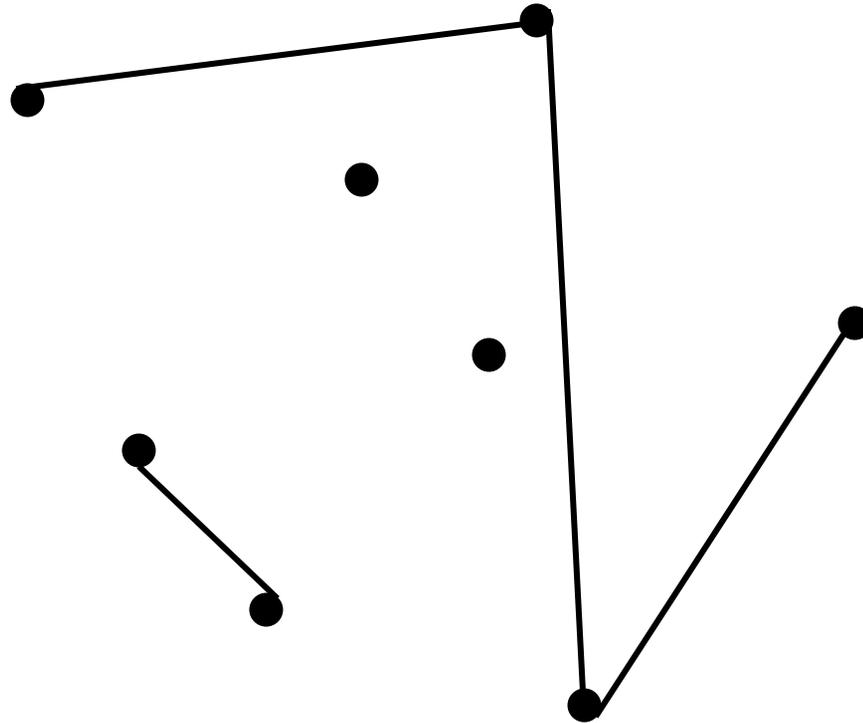
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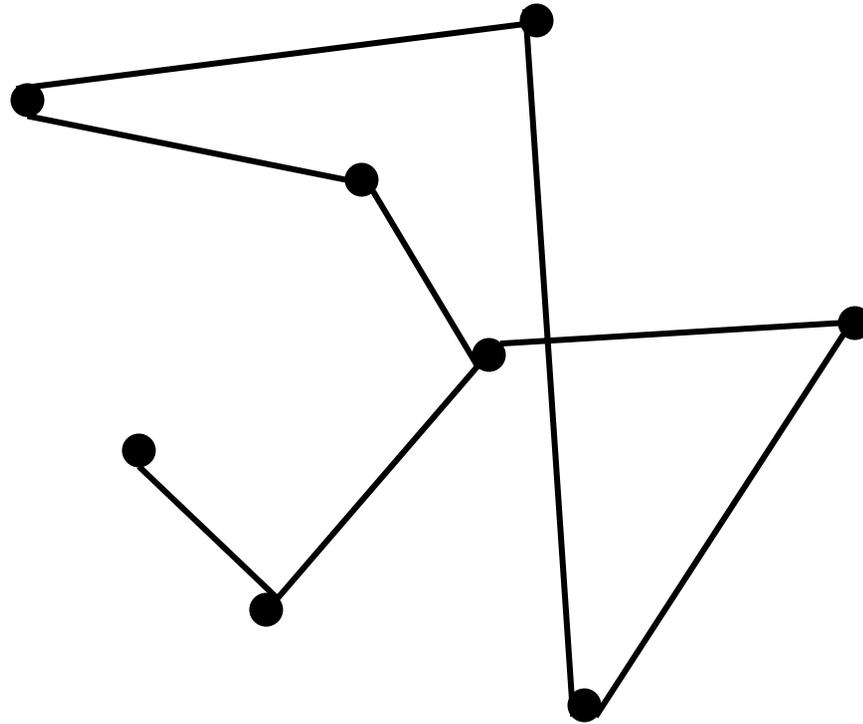
Linear Linkages



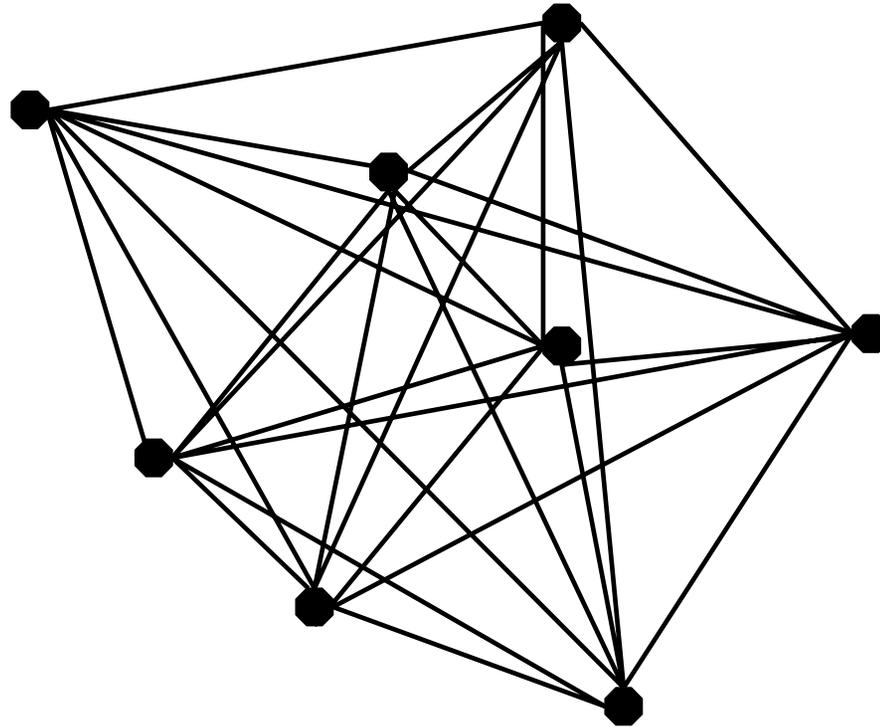
Non-Linear Linkages



Complex Non-Linear Linkages



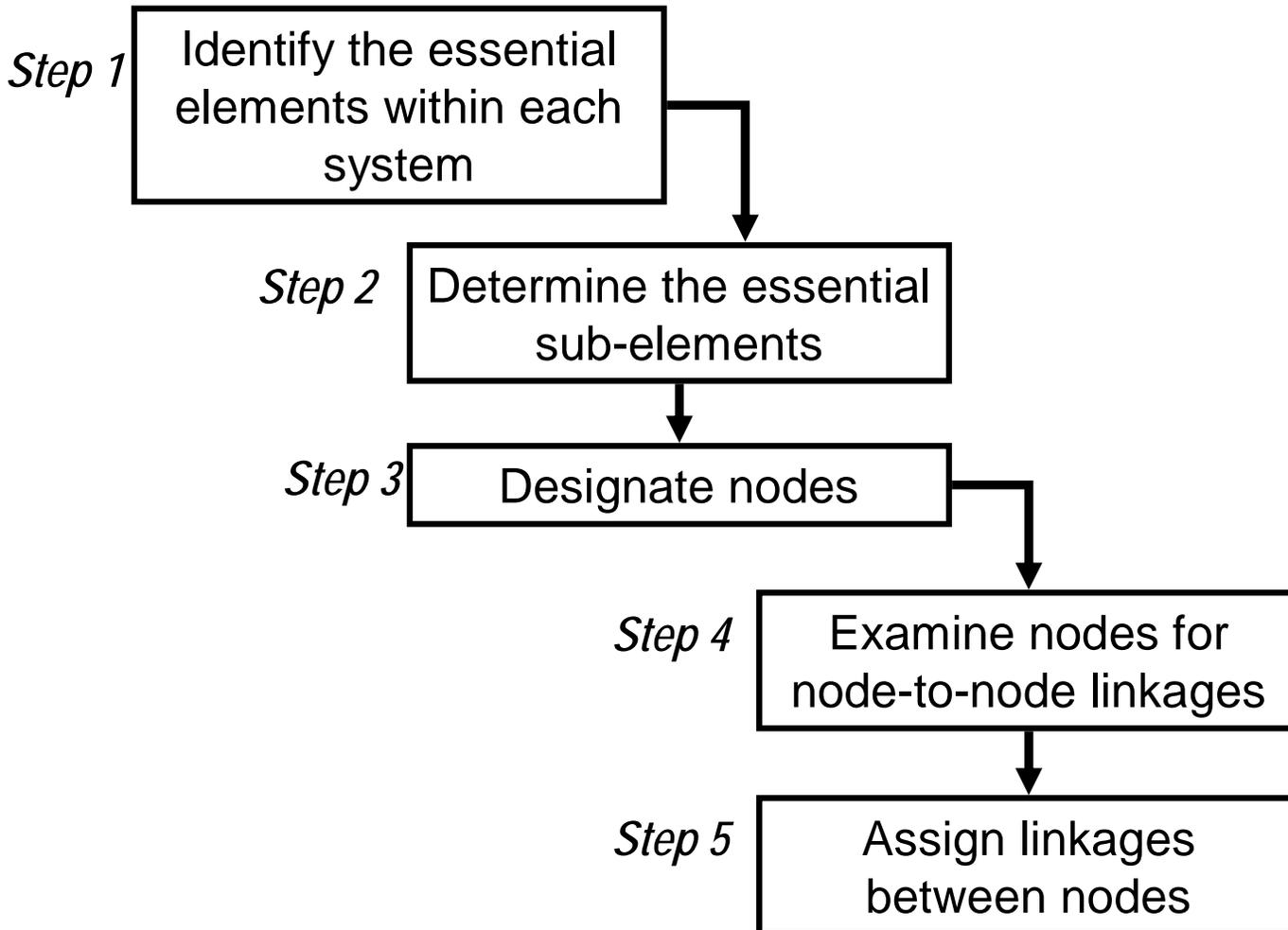
The Analytical Challenge



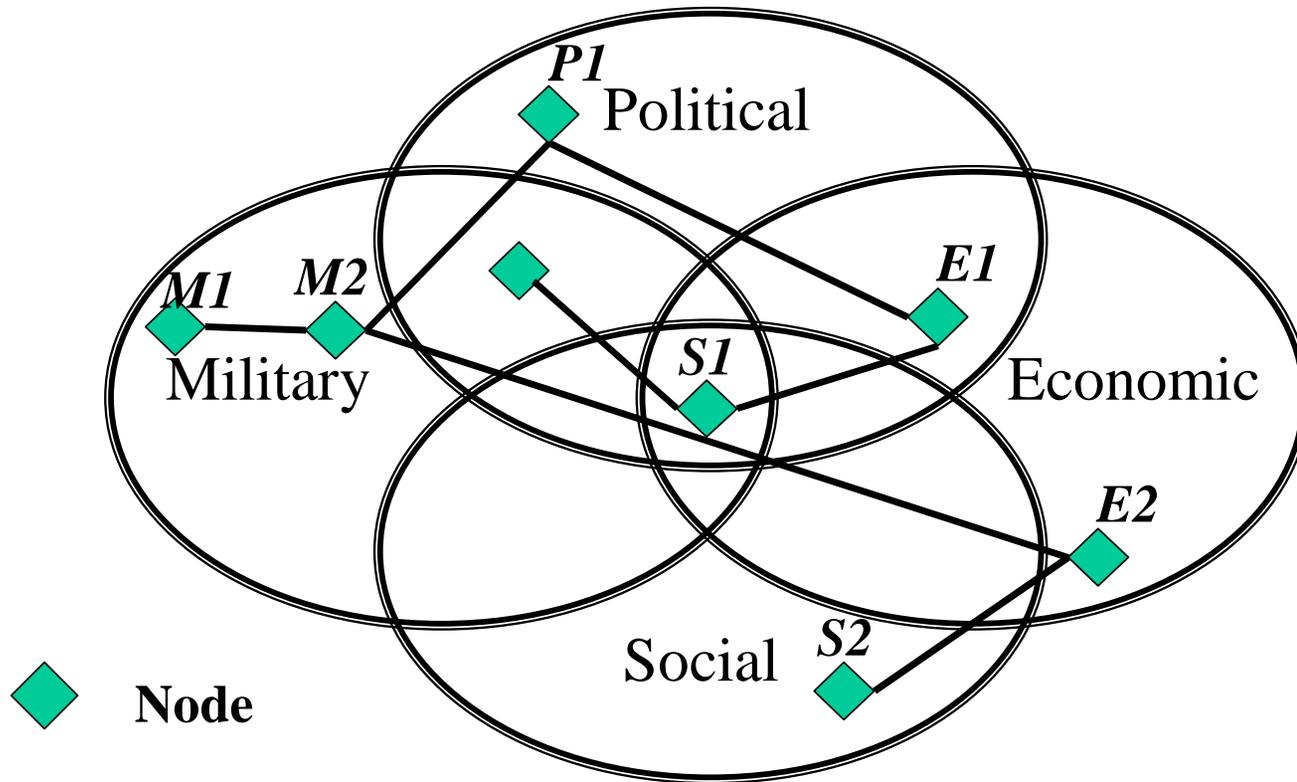
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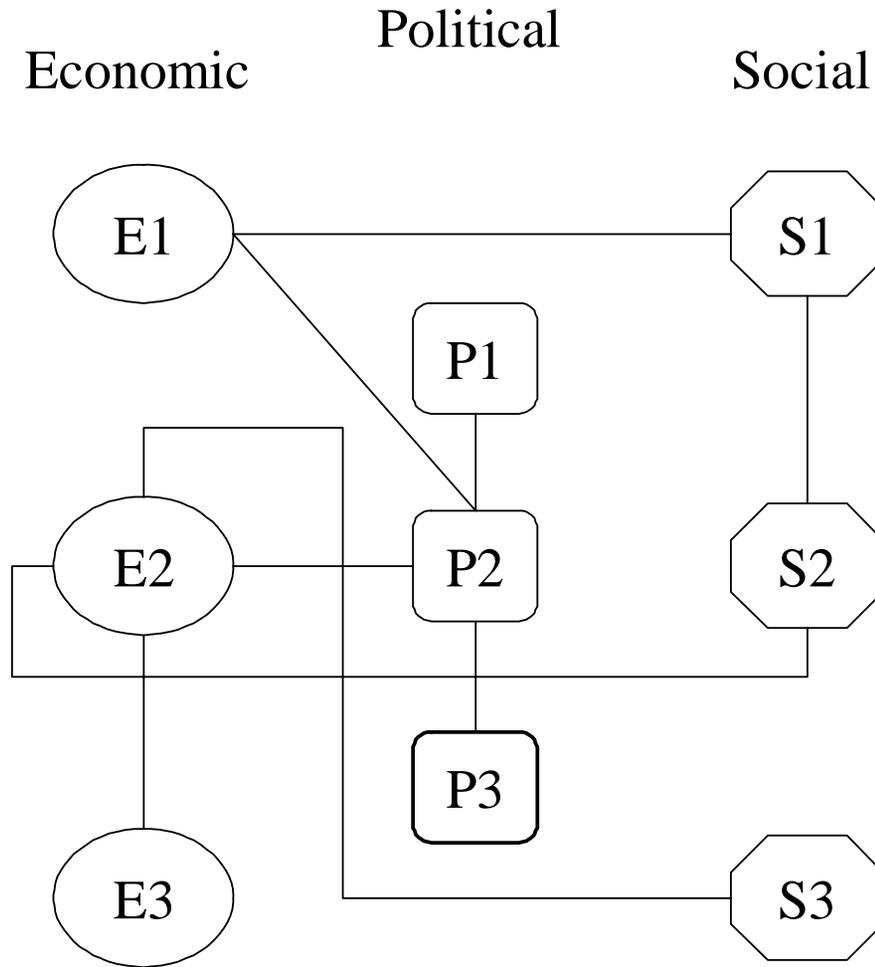
The Assessment Process



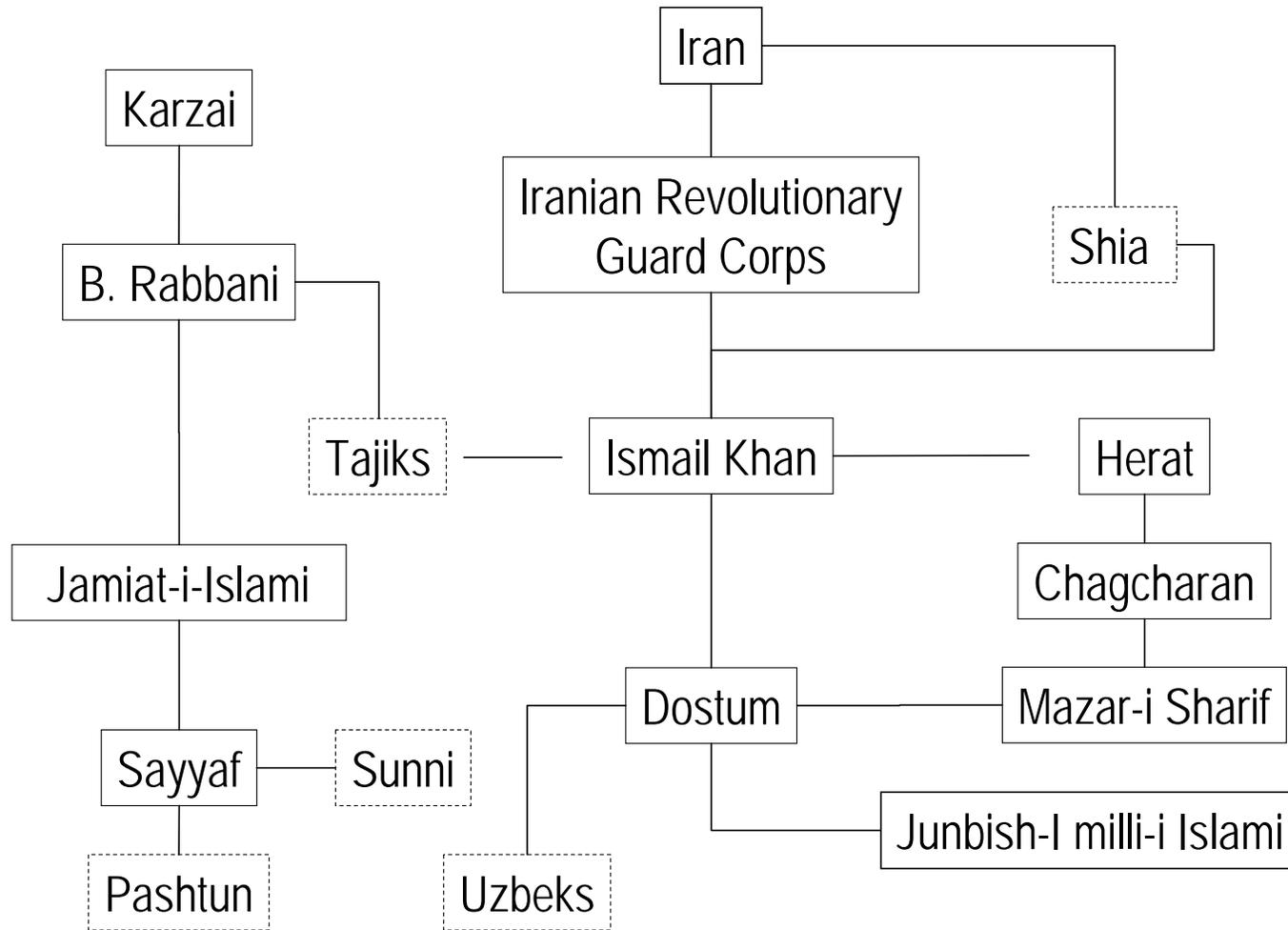
Nodes Within Systems



Linkages across Domains



Warlord Linkages



Conclusions

Theoretical foundation is sound and promising...but what do we do with it?

Number of linkages and interactions is immense.
Technology provides the tools for the analysis—not the analysis itself.

SoSA teams are already in place, however further refinement through experimentation is required.