Markets to Keep the Peace

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with Net Exchange, for DARPA
DARPA said “Jump”

• DARPA funds research on high risk, high return techs ripe for focused effort

• Electronic Market-Based Decision Support ‘01 SBIR
  – Phase I: “design one or more markets to predict events in a limited domain of interest to the DoD, ” select domain, identify participants, their incentives
  – Phase II: “Evaluate the accuracy of market predictions against predictions of the same events by other institutions … develop more general techniques … prepare to establish markets in broader contexts”
We Wondered “How High?”

- Should we ask small or big questions?
- Small questions
  - Usually first try new things on small scale
  - Avoid threaten status quo, org/legal rules
  - But thin markets can fail, hedging markets start big
  - Risk fixed costs more than added info value
- Big questions
  - Existing intelligence techniques fail most here?
  - Prediction analysis get harder, but info markets easier
Shooting Very High

• What do we most want to know?

  “Would moving U.S. troops out of Saudi Arabia raise or lower the chance of a revolution there, or of terrorist deaths in the U.S.?”

• Estimate outcomes given policy

  $1 \text{ if } A \quad \leftrightarrow \quad p(A) \quad \text{ if } B$

  $1 \text{ if } A \& B \quad \leftrightarrow \quad p(A|B) \quad $1 \text{ if } B$
Imagine ...

• Markets on ~10 vars per nation per quarter
  – **Outcome**: regime type, conflict level, deaths
  – **US action**: peacekeeping, show force, aid, …
  – **Intermediate**: GDP, corruption, missile tech
• 2-4 assets/var, ~20 nations near Mideast
• Always estimate any var given any other
• Participate: DoD, academia, media, public?
Challenges

• Laws, Org rules
  – DoD cover, backing
• Overcome participation inertia
• Compare to existing institutions
• Software, user interface
• Combo markets can be thin
  – combo bids, market makers