Interdependence of Security and the Extended Enterprise (I-SEE)

• Former name of session:
  – Extended Enterprise Risk Management

• Prof Stuart Madnick (smadnick@mit.edu)
  – Introduction

• Dr Michael Siegel
  – Aggregating Information & Data

• Prof Nazli Choucri
  – Modeling State “Stability”

• Prof Yossi Sheffi
  – Resilient Supply Chain
Motivation

- Business is Global and Interdependent -> “Extended Enterprise”
- Disruptions can have Dramatic Impact
  - Ohio power plant fails -> \( \frac{1}{2} \) USA loses power
- Terrorism Introduces New Disruptions
- Not Just an Issue for Government and Military
  - Most of USA infrastructure private sector
  - Business, Government, Academia have much to learn from each other
Proposed Functions of I-SEE Effort

• **Perform Research**
  – More on this shortly

• **Develop Courseware and Deliver Courses**
  – Material for MBA courses
    • Sloan experiment in Spring 2004
  – Short courses for executives

• **Facilitate Discussions**
  – Amongst academia, government, and business
Preliminary Research Plan (The Four M’s)

• **Monitor**
  – Develop case studies and gather data

• **Measure**
  – Need to develop better ways to measure
    • E.g., “How secure is your organization?”

• **Model**
  – Ability to predict/anticipate

• **Mitigate**
  – Ways to reduce risk and/or seize up-side opportunities
Monitor

• The “nightmare” is that we are under attack – but do not realize it (e.g., anthrax)
• Understanding “what is going on” is challenge in most organizations (e.g., global financial risk management)
• Need to gather and aggregate information from many disparate sources.
• Example: Aggregating Information & Data (Dr. Michael Siegel)
Measure

• How do we measure “Security”
  – It is more than just effectiveness of firewall or crypto code used.
  – It is more than just technology

• Challenge in addressing:
  – Low probability / High impact events

• Example: New approaches to measurement and metrics (new project)
  – What is “6 sigma” of security?
Model

• Need to Identify and Assess “Possibilities”
• In Complex Extended Enterprises
  – Need to respond fast
  – Often counter-intuitive effects
  – “Early US decisions in Iraq (during pre-conflict) is haunting current efforts (during post-conflict).” [WSJ]

• Example: Modeling State “Stability” (Prof. Nazli Choucri)
Mitigate

• Basic Ways to Deal with Risk
  – Reduce uncertainty
  – Strengthen system (shock resistant)
  – Make system more resilient (adjust to shock)

• These can also benefit organization even under “normal” circumstances
  – Handle unexpected customer demand
  – Can be competitive advantages

• Example: Resilient Supply Chain
  (Prof. Yossi Sheffi)
Some Insights / Observations

• Extended Enterprise Security must be Holistic
  – Not just firewalls and better crypto codes
  – Not just about IT

• Improved Security Need not be an Added Cost – May Actually Provide Added Values
  – Like TQM: Can improve both quality & cost

• Must be Prepared (Aware and Flexible)
  – Surprises can have both downsides and upsides

• Etc.
MIT Faculty
(See Appendix I for brief bios & research interests)

- GABRIEL BITRAN (Sloan)
- JOHN CARROLL (Sloan & ESD)
- NAZLI CHOUCRI (Political Science Dept)
- STEVE GRAVES (Sloan & ESD)
- BENJAMIN GROSOF (Sloan)
- RICHARD LARSON (Civil Engineering & ESD)
- DON LESSARD (Sloan)
- STUART MADNICK (Sloan & ESD)
- YOSSI SHEFFI (Civil Engineering & ESD)
- MICHAEL SIEGEL (Sloan)
- RICHARD WANG (CTPID)
- ROY WELSCH (Sloan & ESD)

- Sloan = MIT’s Sloan School of Management
- ESD = MIT’s new “Engineering Systems Division”
Next Steps

• Join as a Founding Member
• Propose specific
  – Directed research
  – Teaching projects

• Questions?
Rest of Session: Examples of I-SEE Research Topics

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  – Aggregating Information & Data

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