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#### Game Theoretic Real Option Approach of the Procurement of Department of Defense: Competition or Collaboration

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Monterey, California. Naval Postgraduate School

https://hdl.handle.net/10945/54727

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#### Game Theoretic Real Option Approach of the Procurement of DOD: Competition or Collaboration

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#### Structure

- Introduction
  - Origin
  - Problems
- Intelligence Base
- Strategic Interaction
  - Interdisciplinary forum
  - Option games
- MOD: compete or collaborate
- Way ahead
- Conclusions
- A&Q

# Introduction

# Origin

- IT Medical Service: flexible
- ACOS Eval (2002-2007)
  - New structure, so new management tools,
    - BSC, CAF, Harmonization plans, ..
  - but culture ...
- Last of the Mohicans
  - Expertise gone
  - Phoenix
  - Outside Defense => Federal

#### Phoenix

- From strategy to Service
  - Skeleton
  - <u>Generic</u>
  - Logical sequence
- Domain of IT
- Investment
  - EAI, SOA
  - Cloud Computing

#### Problems

- Real optionis the right, but not the obligation, to undertake some business decision
- Weeds (2006):
  - Complex mathematics
  - Constantly seeking for information
    - Is this not normal?
- Ferreira et al. (2009):
  - Lack of strategic interaction
    - Option games

**Intelligence Base** 

#### Intelligence base

- NATO IST-055 Specialist Meeting. The Hague, Netherlands, 2005
- Generic process
  - ACOS Evaluation Belgian MOD
- Facts stay, Intelligence changes
  - Facts Base
  - Knowledge Base
  - Network of sensors
  - Management of the unknown

#### Intelligence Base



### Intelligence

- DOD/MOD: business as usual
- Implementation: cultural bound
- DOD: Knowledge-as-a-Service (KaaS)
  - Cloud Computing, Knowledge, Pre-analyzed content
- Data-as-a-Service (DaaS):
  - Dun and Bradstreet, Equifax,
- Internal: CAF

### Intelligence for ...

- Everybody (Open  $\rightarrow$  Closing)
- Context
- Lessons learned
- Workforce
  - Transparency
  - Incentive: win/win or avoid to be beaten up
  - Culture !!!!!

#### **Strategic Interaction**

Interdisciplinary Forum



#### Grand Strategy

- the art of combining all <u>resources</u> of an organization or alliance into a dynamic adaptable plan to achieve its (political) <u>goals</u>
- Balance Goals/Means
- Derived from GS:
  - Business Strategy (goals in Environment)
  - Resources Strategy (means)

#### **Interdisciplinary Forum**



#### IF for ...

- Business and Resources
  - Bringing User and Material Managers, therefore procurement, together
  - Business-driven
- INTER => all, not some
- Enabler transparency => sharing data, knowledge
- Cutting Budget => interdependency

#### **Cascading Intelligence**



#### **Time Horizon**



#### **Strategic Interaction**

**Option games** 

### **Game Theory**

- game theory models strategic situations, or games, in which an individual's success in making choices depends on the choices of others.
- First competition
- Later also collaboration
- Payoff matrix

#### **Representation of a game**



- Doves, hawks

- Symmetric info?

#### Mono-game chain of real options



#### **Multi-game chain of real options**



#### Which level is the game?



# MOD: compete or collaborate?

#### First or second Mover?

#### First Mover

- Enforce standardization
- Suites best its policy
- Unproven strategy → Risk, uncertainty
- Second Mover
  - Wait-and-see (lessons learned Leader)
  - Market efficiency
  - Possibility of sacrificing objectives
- Now-or-Never
  - Immediate (re)action

### Collaboration

- If you can't beat them, join them
- Political will
  - Standardization in Alliance
  - Same domain (Military)
  - Same country (Other Government Agencies)
  - Hybrid (non-governmental, commercial)
- Game theory
  - non-zero sum games

### Regulator

- creating the game theory framework in which the suppliers will interact with each other
  - Competition only
  - Competition followed by collaboration
  - Collaborate
- Utopia

# Way ahead

#### Issues

- Changing legislation
  - Belgian
  - European Union
    - Open Source
    - Cloud Computing
- Complexity
  - Not one magic rule, method
  - Fuzzy ROV
- KVA (NPS) => FPS P&O, Prime Minister

## Conclusions

#### Conclusions

- Generic (skeleton, hallstand)
- Option games
  - ROV
  - Intelligence base
- Interdisciplinary Forum
  - On which level are we "playing"?  $\rightarrow$  acquisition
  - Strategic interaction
  - Collaboration, Competition
  - Regulator
- Still issues





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