Understanding the Dynamics of Innovation in the Government Space Sector

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Motivation (1): Space Market Creates Strategic Innovation Tradeoffs

- Monopoly markets entice a top-down acquisition process. Need to balance funding for ‘self-project’ and exploratory technology development
- When representing the needs of disaggregated buyer, the extent to which to prioritize knowledge type
- When integrating fragmented sell-side knowledge from the top-down, need to maintain certain amount of knowledge technical expertise
- Given the politicization and public visibility of space activities, how to balance accountability and the need for experimentation

Space market disrupts nature of innovation pathway


- While there is general recognition of a need for both “basic” and “applied” R&D efforts, there is little consensus on what the “right” balance is. Despite enterprise innovation, fundamental lack of understanding of innovation pathway in the space context
- With understanding, tradeoff cannot be treated.

Conceptualization: Government Space as Innovation System

- R&D Innovation is the process through which the technological opportunity is either defined by the user (market driven) or new opportunity is identified by the user (market driven). The resources required to achieve an enabling capability may be high, eradicating the system’s chance of success

Problem Refinement: Exploratory Case Study

- Understanding the nature and implications of the basic vs. directed R&D tradeoff requires a systems perspective, integrating both a representation of the formal institutional mechanisms and the informal “innovation pathways”, studied over decades

Research Design

- Concept Development
- Goal Explanation and Theory refinement

Empirical Theory Development

- Cases selected based on variety in array of key parameters

Research Status

- New Understanding
  - Conceptualization of space agencies as innovation systems
  - Representation of formal institutional structure
  - Causal explanation of a selection of innovation pathways

- Practice
  - Basis for institutionalizing the pathways (that work)
  - Insights into the tradeoff between basic and applied R&D in government monopolies

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