Ποιος θα θερίσει τη σοδειά της καινοτομίας;

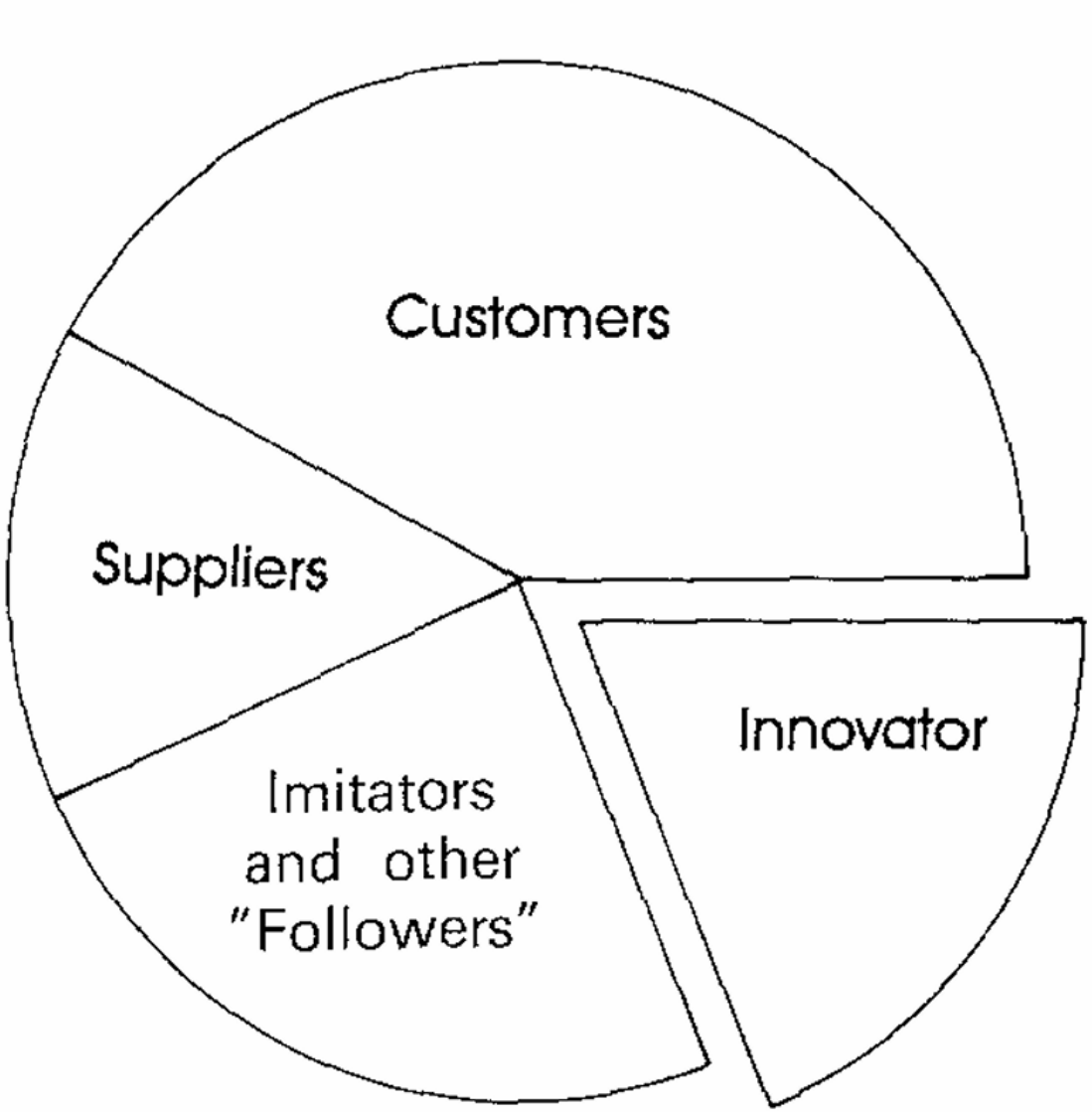
Τεχνολογική Στρατηγική

- ***ΔΠΜΣ «Επιχειρηματικότητα»***

Γεώργιος Σταμπουλής

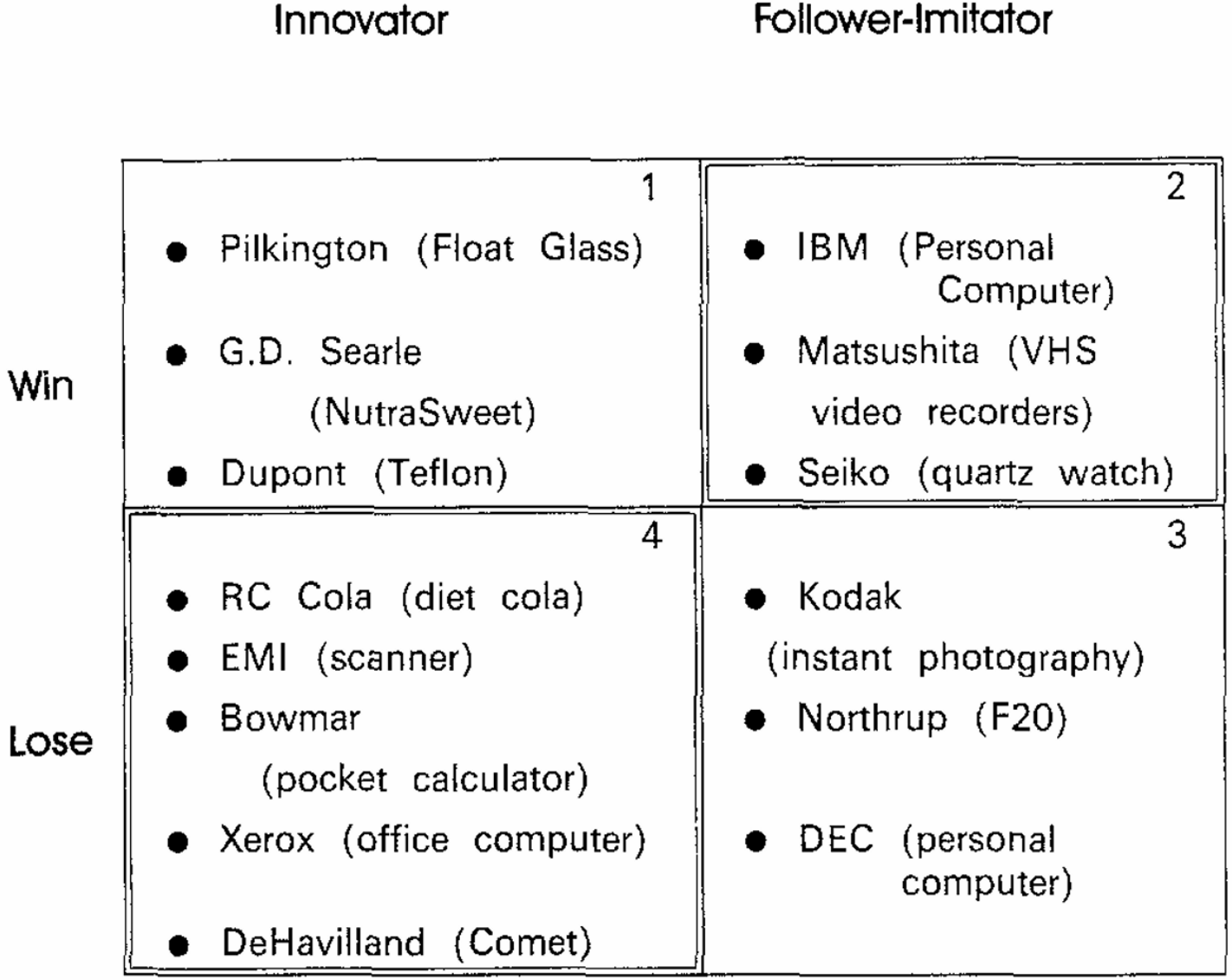
Τμήμα Οικονομικών Επιστημών

ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ



What determines the share of profits captured by the innovator?
(Teece, 1986)

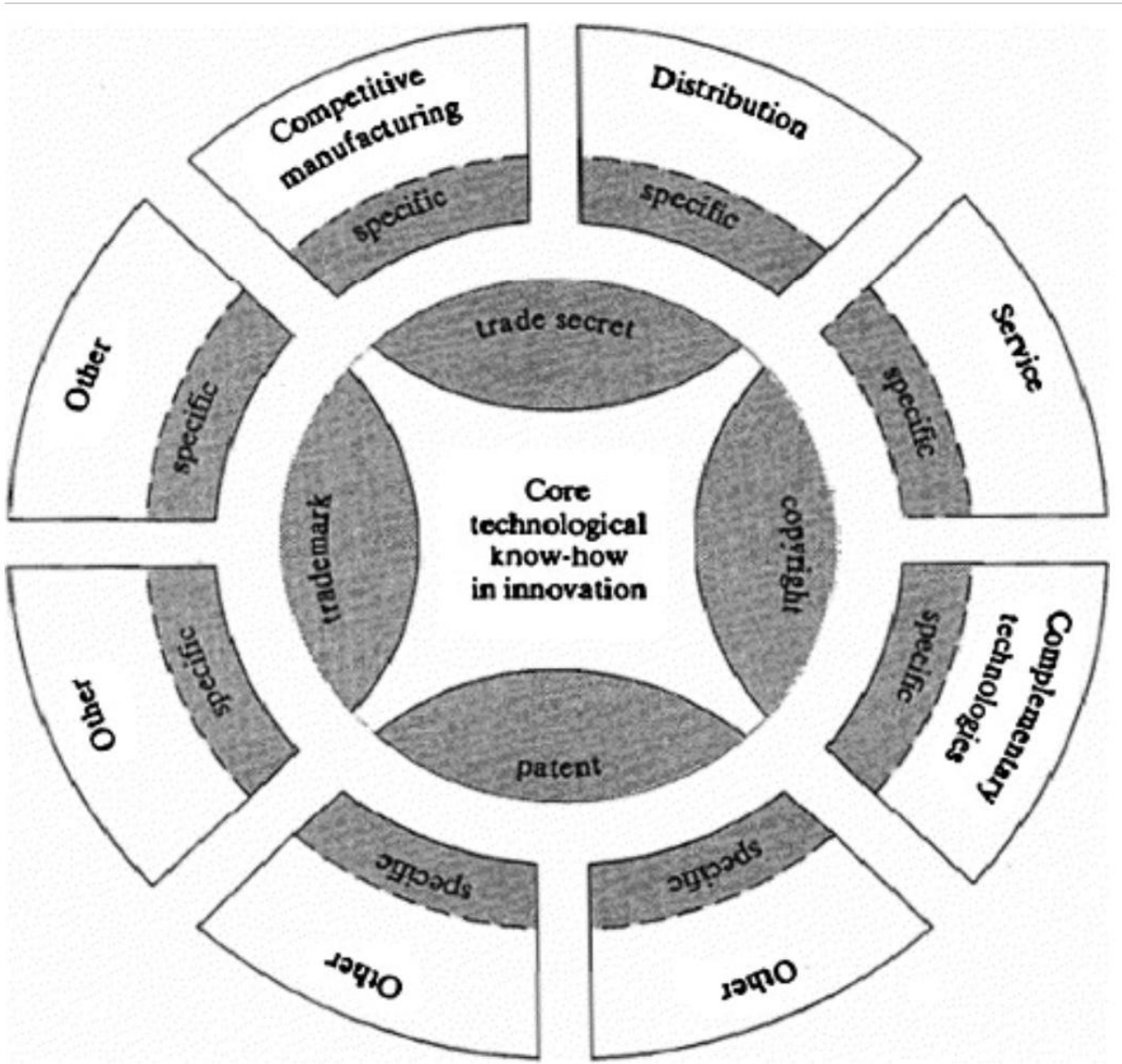
Taxonomy of outcomes from the innovation process (Teece, 1986)



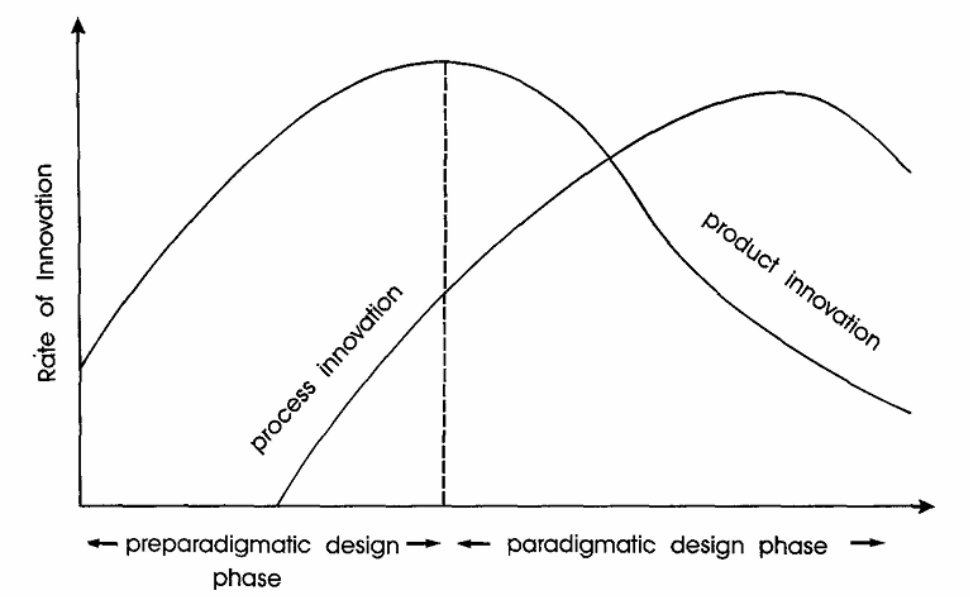
Profiting from innovation

- “appropriability, and success at innovation more generally, is related not so much to the innovator’s ex-ante market share, but to the (complementary) asset structure of the innovator, management’s market entry timing decisions, and the contractual structures employed to access missing complementary assets” (Teece, 2006)
- *Appropriability regime*
- *Complementary assets and co-specialization*

Complementary Assets (Teece, 2006)

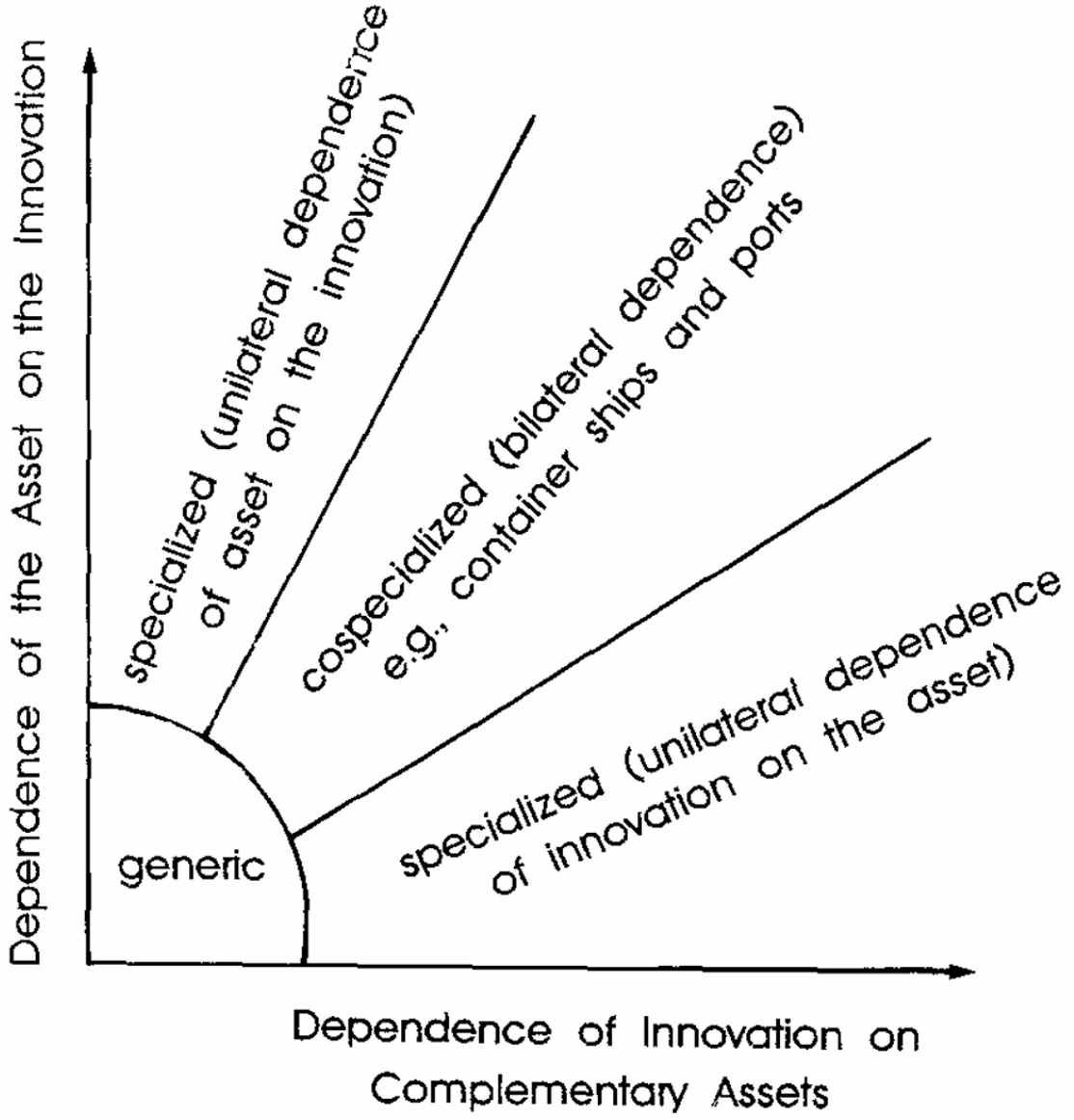


Appropriability regime: Key dimensions (Teece, 1986)



Legal instruments	Nature of technology
Patents	Product
Copyrights	Process
Trade secrets	Tacit
	Codified

Complementary assets: Generic, Specialized, and Cospecialized (Teece, 1986)



Alternative integration strategies

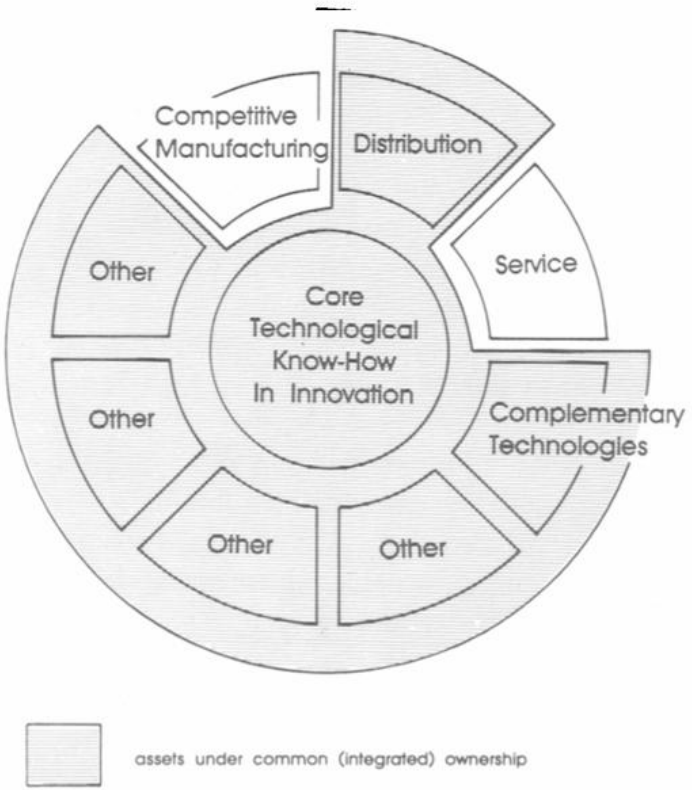


Fig. 8. Complementary assets internalized for innovation: Hypothetical case #2 (innovator subcontracts for manufacturing and service).

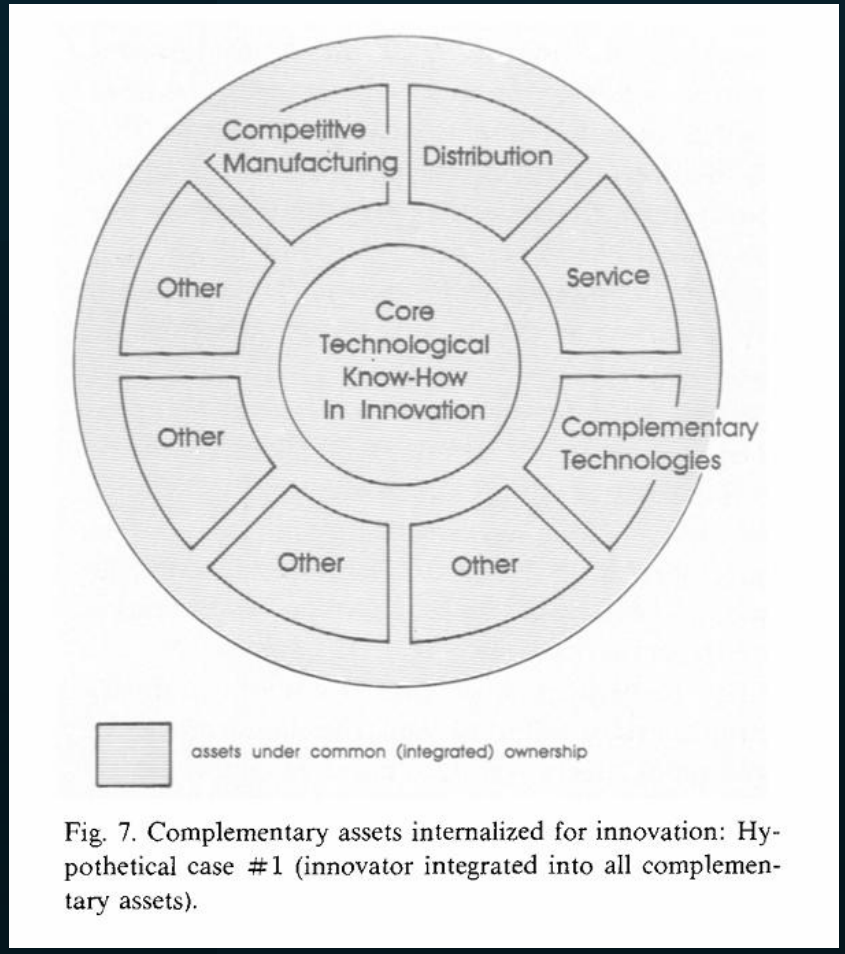
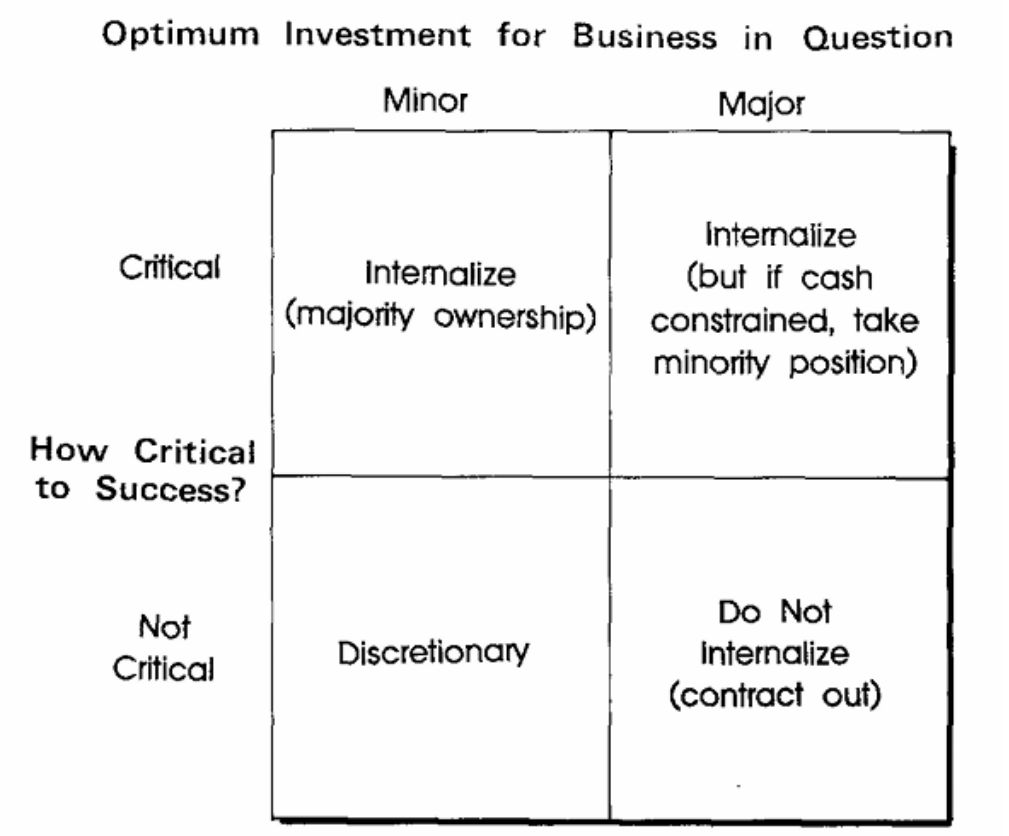
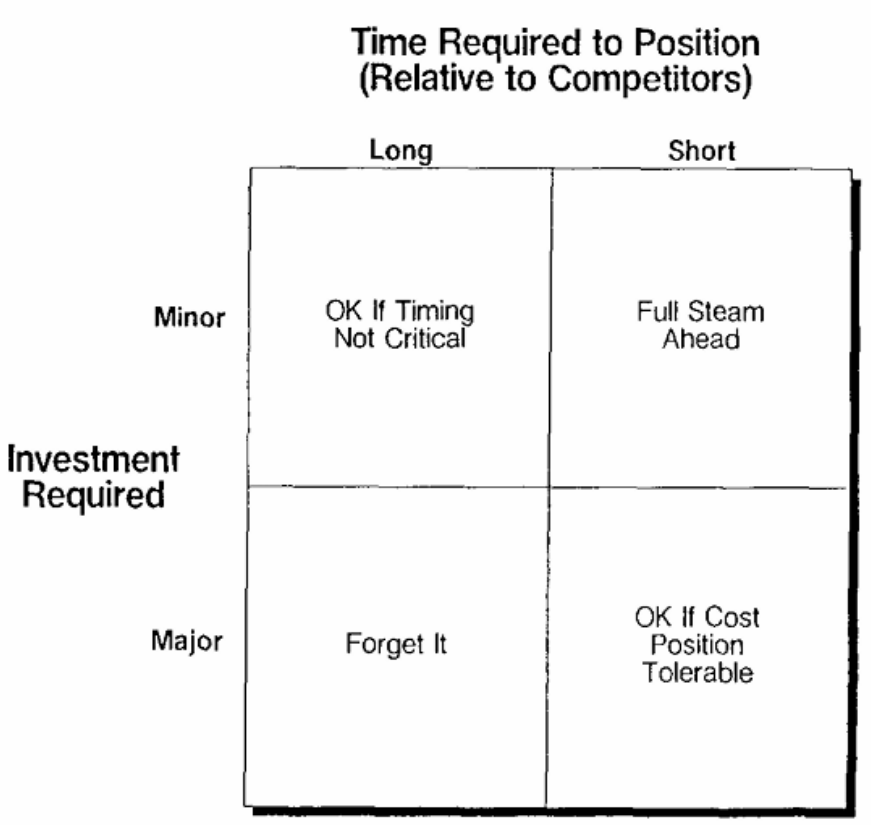


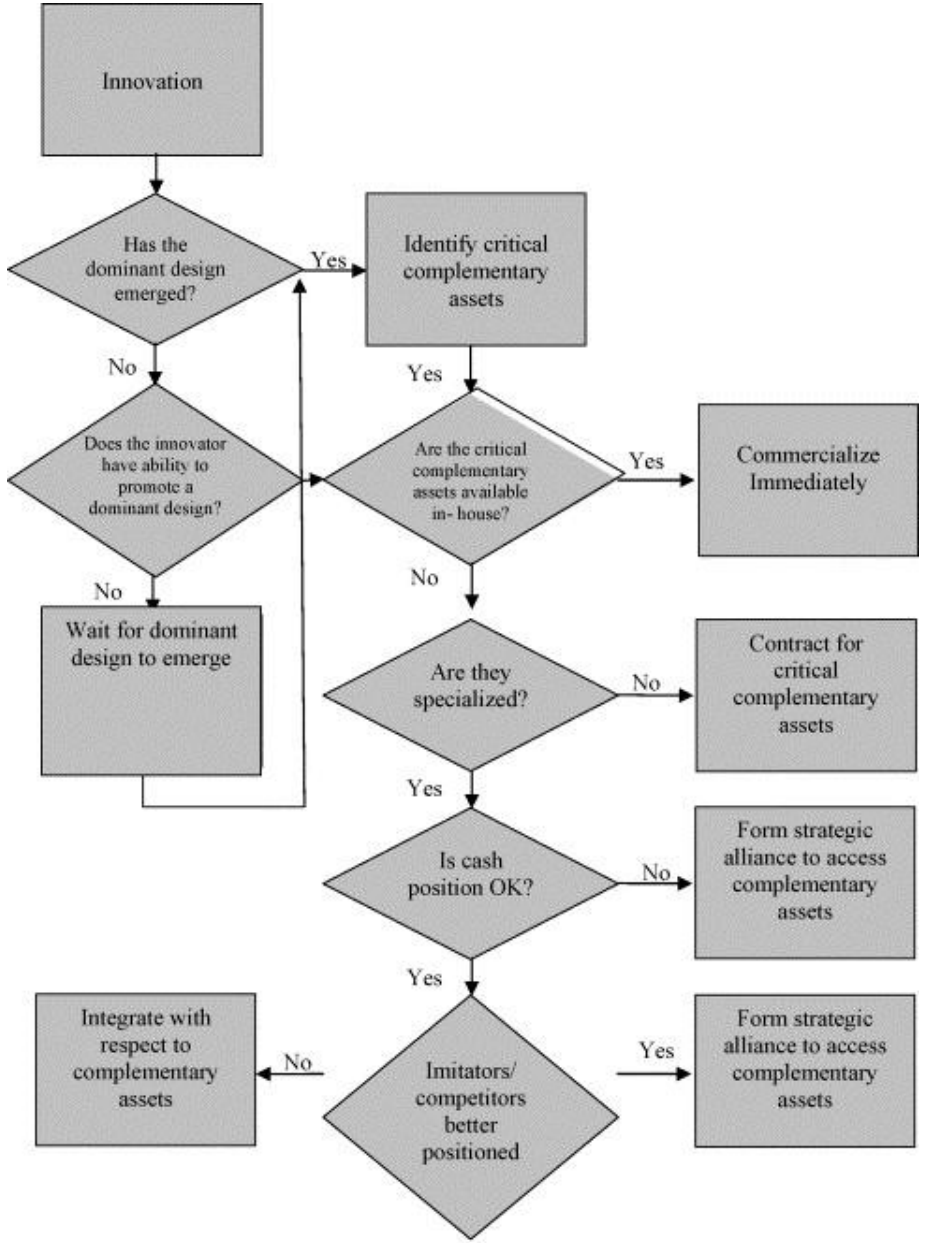
Fig. 7. Complementary assets internalized for innovation: Hypothetical case #1 (innovator integrated into all complementary assets).

Specialized complementary assets and weak appropriability: Integration calculus,





Market Entry Strategies for Innovators (Teece, 2006)



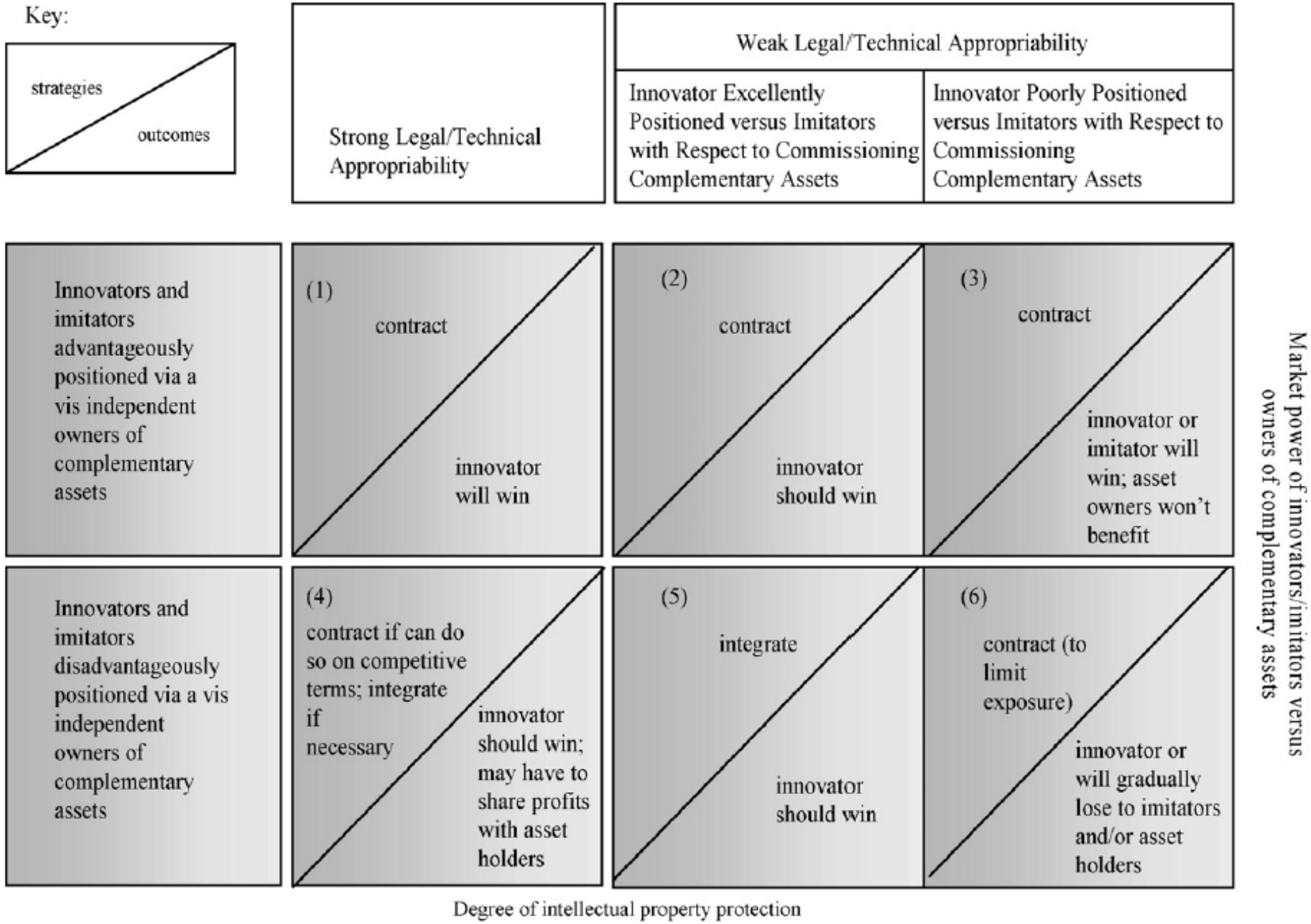


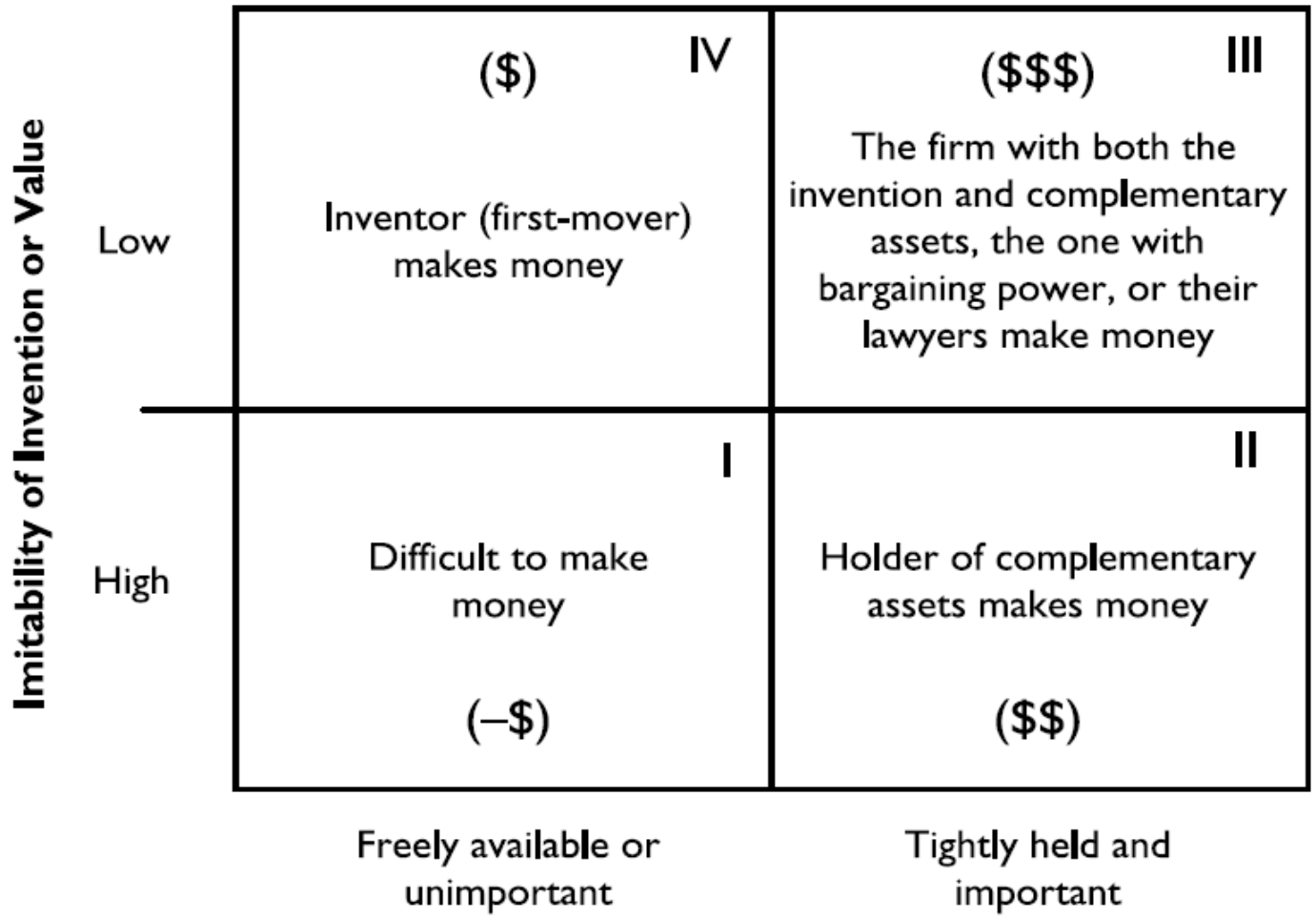
Fig. 2. Contract and integration strategies and outcomes for innovators: specialized asset case (Fig. 11 in Teece (1986)).

Summary of Characteristics That Drive Selection of Value Capture Mechanisms

Mechanism	Factors That Affect the Effectiveness of a Given Value Capture Mechanism			
	Institutional	Industry	Firm	Technological
Patents	Strength (ranking) of intellectual property rights	Competitive intensity, number of rivals, barriers to imitation	Scale and scope of R&D, innovation activity, ability to manage patenting process	Complexity or tacitness
Secrecy	Strength (ranking) of intellectual property rights	Fragmentation of suppliers, rivals, and buyers; signaling, technological standard	Scope of R&D, technological specialization, firm size	Complexity or tacitness, process innovations less likely to be reverse engineered than product innovations
Lead time	Conceptually yes, but none identified	Horizontal (differences in product attributes) vs. vertical (differences in quality and efficiency) differentiation	Absorptive capacity, ability to acquire and use information	Codifiability, teachability, complexity
Complementary assets	Strength of intellectual property rights, specialized/ co-specialized assets	Strength of intellectual property rights, specialized or co-specialized assets	Contractibility in factor market	Rapid or radical technological change, specialized or co-specialized assets
Patents & secrecy	Strength of intellectual property rights, specialized/ co-specialized assets	Strength of intellectual property rights, specialized or co-specialized assets	Scope of R&D, technological specialization	Complexity or tacitness, codifiability, process vs. product innovation
Patents & complementary assets	Strength of intellectual property rights, fragmented vs. concentrated ownership of intellectual property	Strength of intellectual property rights, incumbent vs. new entrant owns comp assets	Scope of technological capabilities (IP rights), incumbent owns specialized or co-specialized assets	Complexity, intellectual property generation, and utilization process

Πηγή: James et al. (2013)

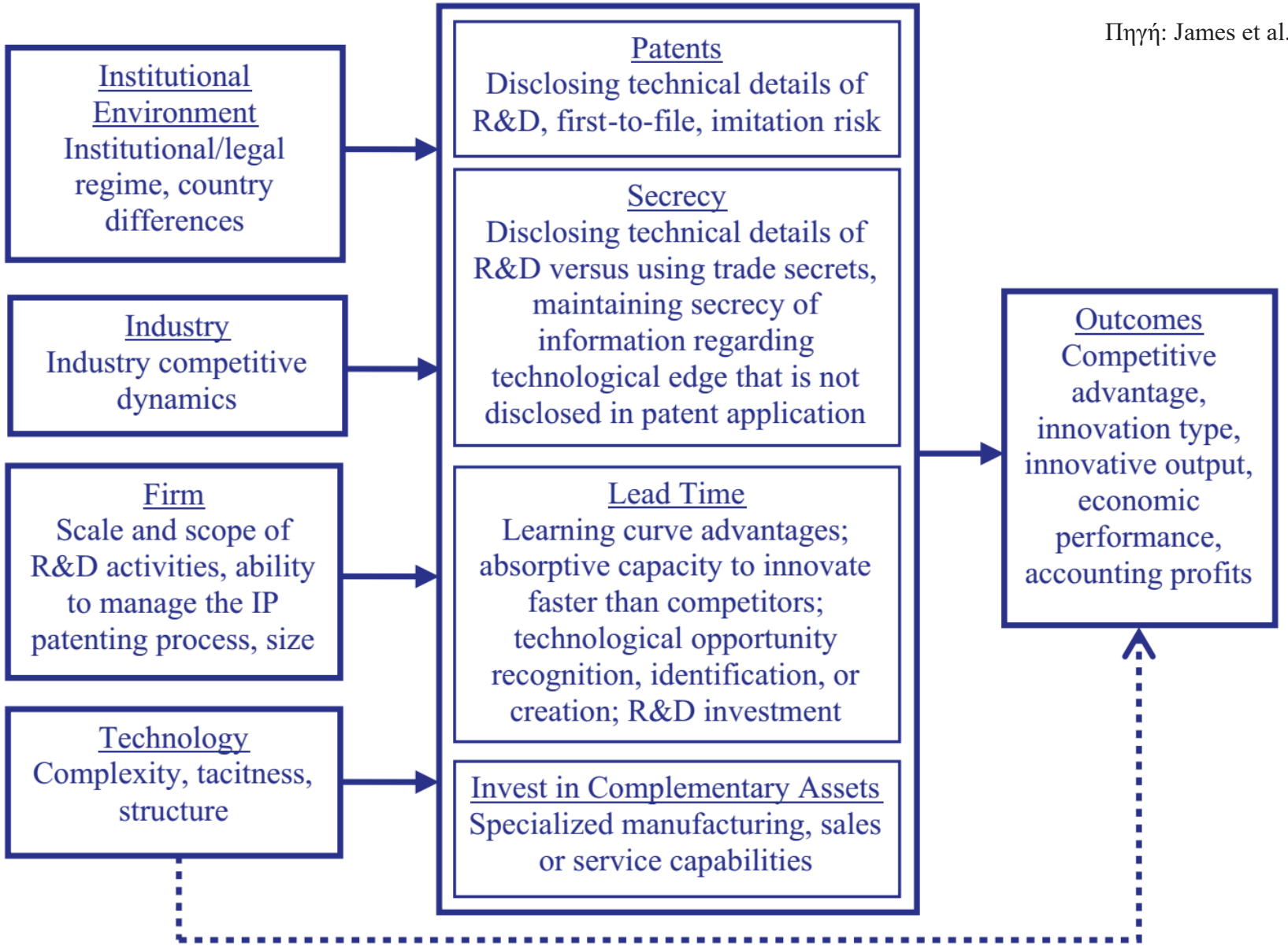
WHO PROFITS FROM INNOVATION?



Teece (1986), Afuah (2009)

Relationship Among Exogenous Conditions, Selection of Appropriability Mechanisms, and Innovation Outcomes

Πηγή: James et al. (2013)

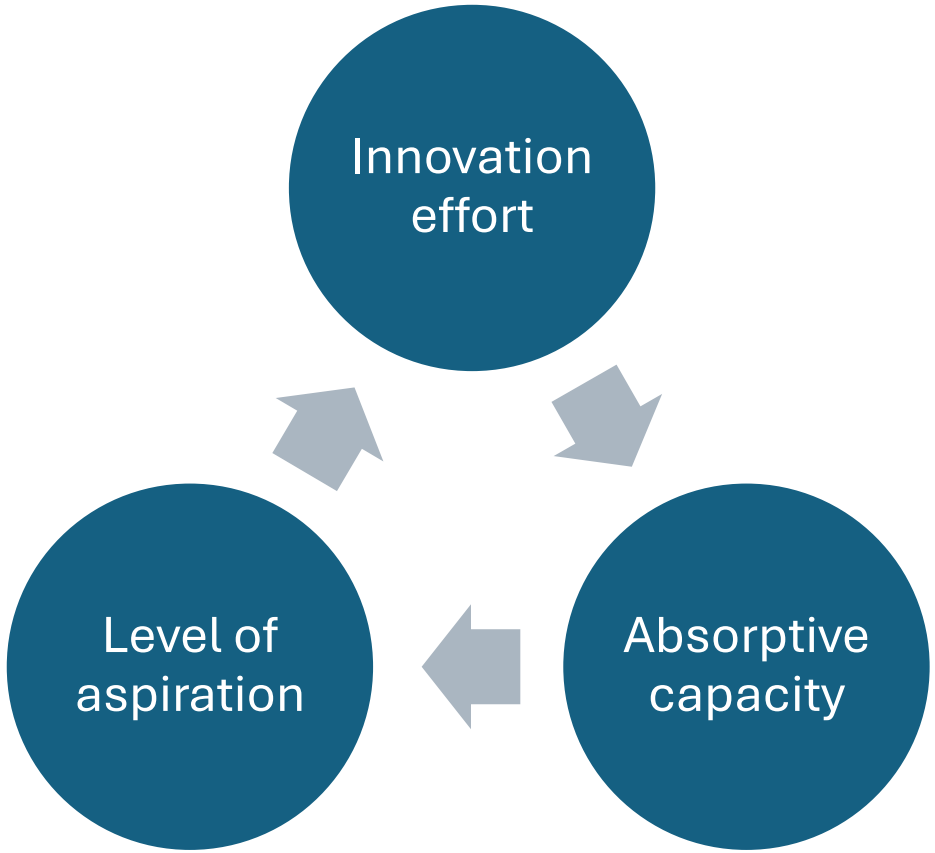


Absorptive capacity

- Similar to problem solving
- Individual or Organizational
- Communication channels
  - Transfer of knowledge? (no!!!)
  - Gatekeeping – boundary spanning
    - Centralized or not?
  - Receptors
  - Inward *vs* outward looking
- Challenge of rapid change
- Resource slack – redundancy
- Hiring?

Path Dependence and Absorptive Capacity

- Mining effect
- Level of aspiration – sensitivity to external events
- Self-reinforcing cycle



Technology Alliance Strategies, (Doz Y. and Hamel G., 1997)

	Individual Alliance	**Network of Alliances**
Capability Complementation	A GE-SNECMA alliance	B Corning Glass alliances
Capability Transfer	C Thomson-JVC alliance	D Aspla

Trade-offs between Different Modes of Collaboration (Schilling, M. A., 2017)

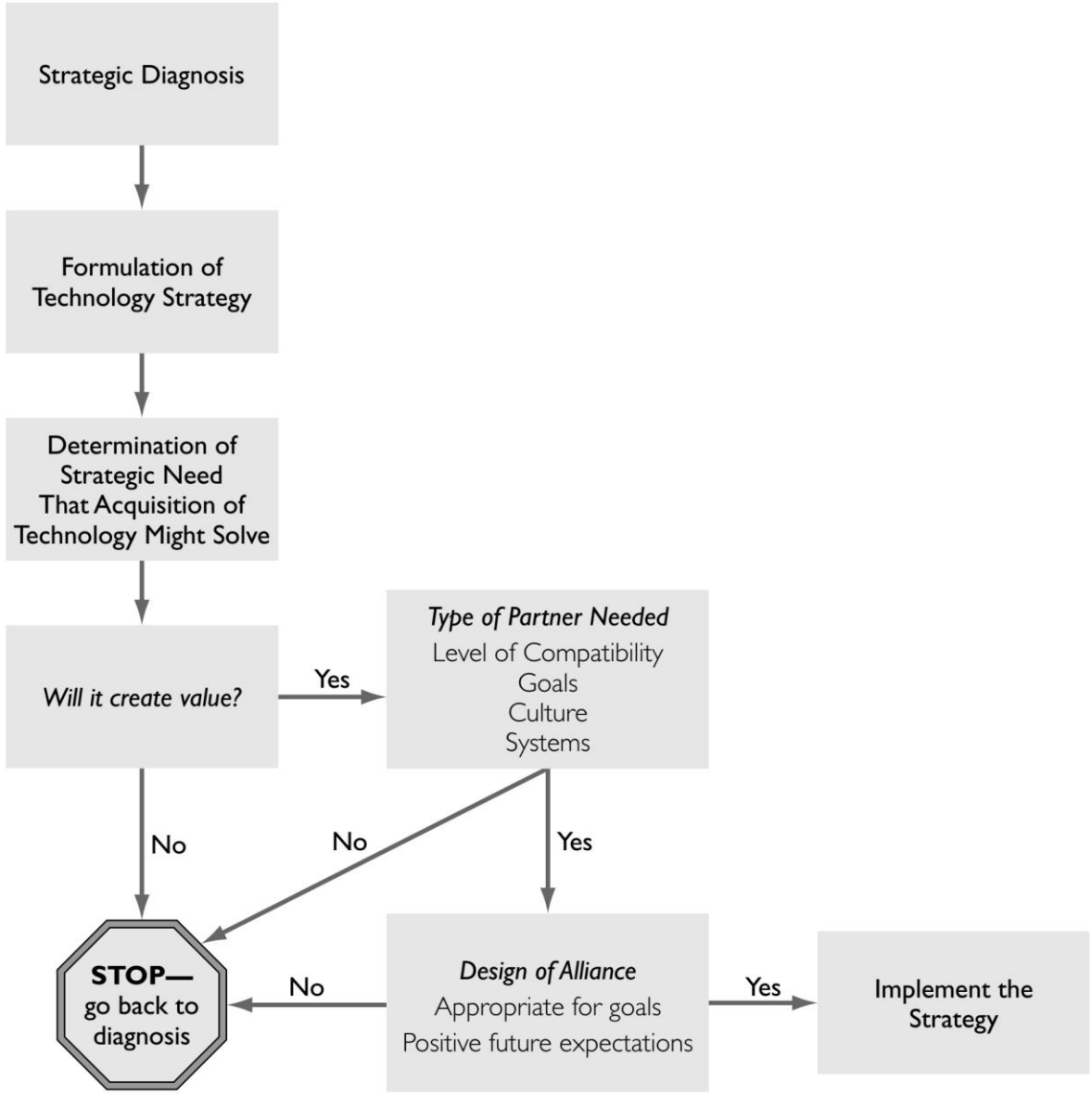
	Speed	Cost	Control	Potential for Leveraging Existing Competencies	Potential for Developing New Competencies	Potential for Accessing Other Firms' Competencies
Solo Internal Development	Low	High	High	Yes	Yes	No
Strategic Alliances	Varies	Varies	Low	Yes	Yes	Sometimes
Joint Ventures	Low	Shared	Shared	Yes	Yes	Yes
Licensing In	High	Medium	Low	Sometimes	Sometimes	Sometimes
Licensing Out	High	Low	Medium	Yes	No	Sometimes
Outsourcing	Medium/High	Medium	Medium	Sometimes	No	Yes
Collective Research Organizations	Low	Varies	Varies	Yes	Yes	Yes

Η τεχνολογική στρατηγική θεώρηση συγχωνεύσεων και εξαγορών

	Goals	Examples of Desired Outcomes
Horizontal	Learn new skills Gain ground on competitors	Improvements in manufacturing or marketing Reach critical size
Vertical	Access new technology Gain ground on competitors	Upstream or downstream control Cost reduction; Improve quality
Related	Learn new skills Gain ground on competitors	New customers Marketing or manufacturing improvements
Unrelated (most difficult)	Access to new technology Learn new skills	New products, processes, markets Risk diffusion, new customers/suppliers

White M. and Bruton G. (2011)

Δέντρο απόφασης τεχνολογικής εξαγοράς



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