Τεχνολογική Στρατηγική ΙΙ – Καινοτομία, Πνευματική Ιδιοκτησία και Στρατηγική Ιδιοποίησης

Τεχνολογική Στρατηγική

▷ ***ΔΠΜΣ «Επιχειρηματικότητα»***

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Τμήμα Οικονομικών Επιστημών

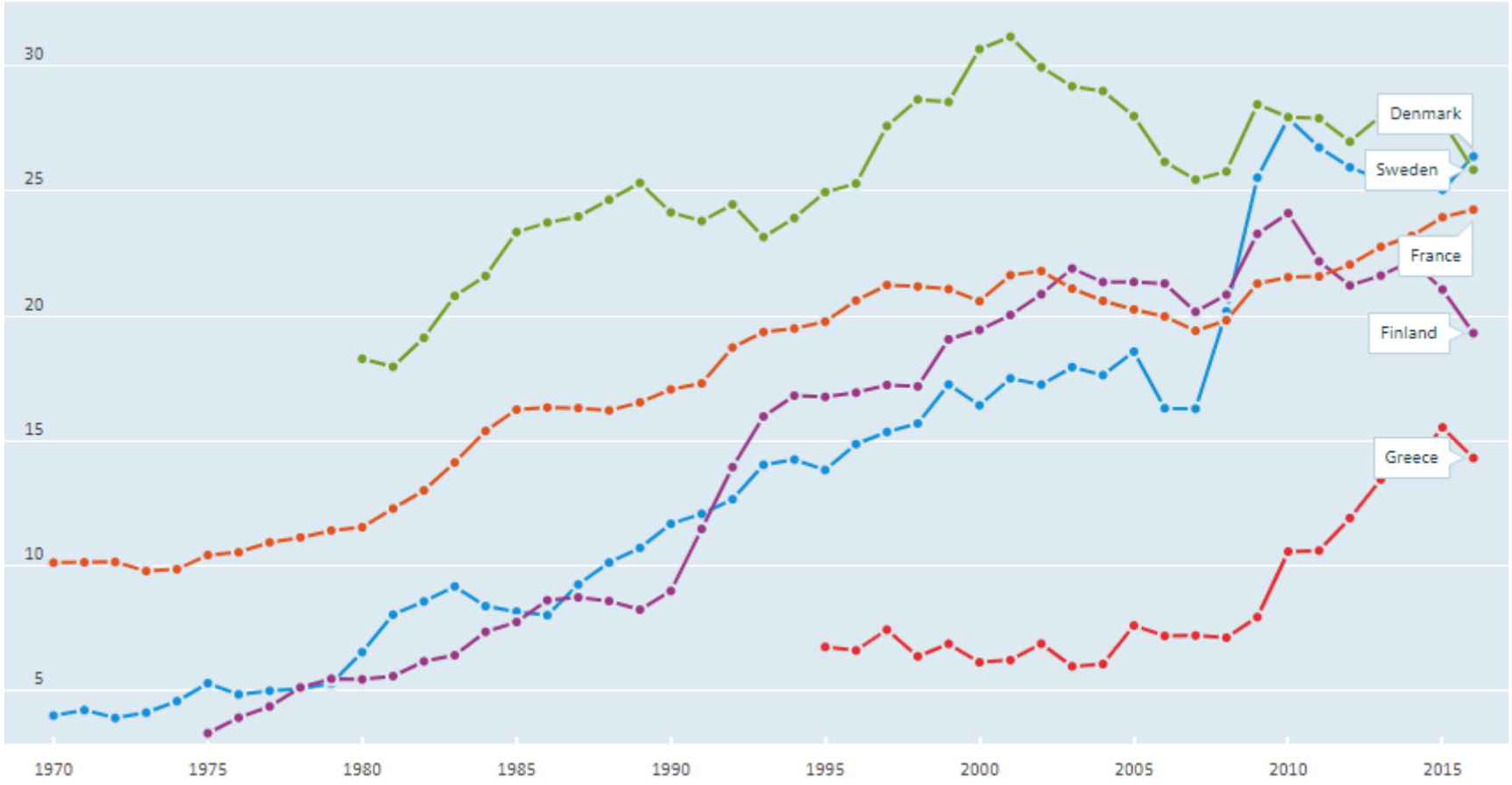
ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ

Intangible assets

- Intellectual Property
  - Codified knowledge
  - Tacit knowledge
- Awareness (recognizability)
  - Brand
  - Reputation
- Relationships
  - Network: personal or organizational

Intangible capitalism?

Investment in intangible assets, % of GFCF, 1970 – 2016



Source: OECD National Accounts Statistics: National Accounts at a Glance

Intellectual Property

- Data
  - Customer information
- Secrets
  - Recipes
  - Processes
- Inventions
- Know-how
- Marks & Brands

IPR(ights)

- Proprietary
- Methods of Protecting Intellectual Property
  - Trademarks
  - Patents
  - Industrial Designs
  - Copyrights
  - Marks & Brands
  - Plant Patents
- Free information (open source etc)
- Creative Commons

Patent: a property right

- Right to ***exclude others*** from making, using, selling, offering for sale or importing the claimed invention (*"enclosure"*)
  - For a limited time
  - With limited territorial application

The economic rational of IPRs

- Mutual benefit for
  - Inventor: enjoys time-limited monopoly and
  - Public: information is disclosed for further advancement
- Motivation to innovate
  - Inconclusive evidence
- Protection of innovators' rights
  - An issue of resources, power and institutional context

Why patent?

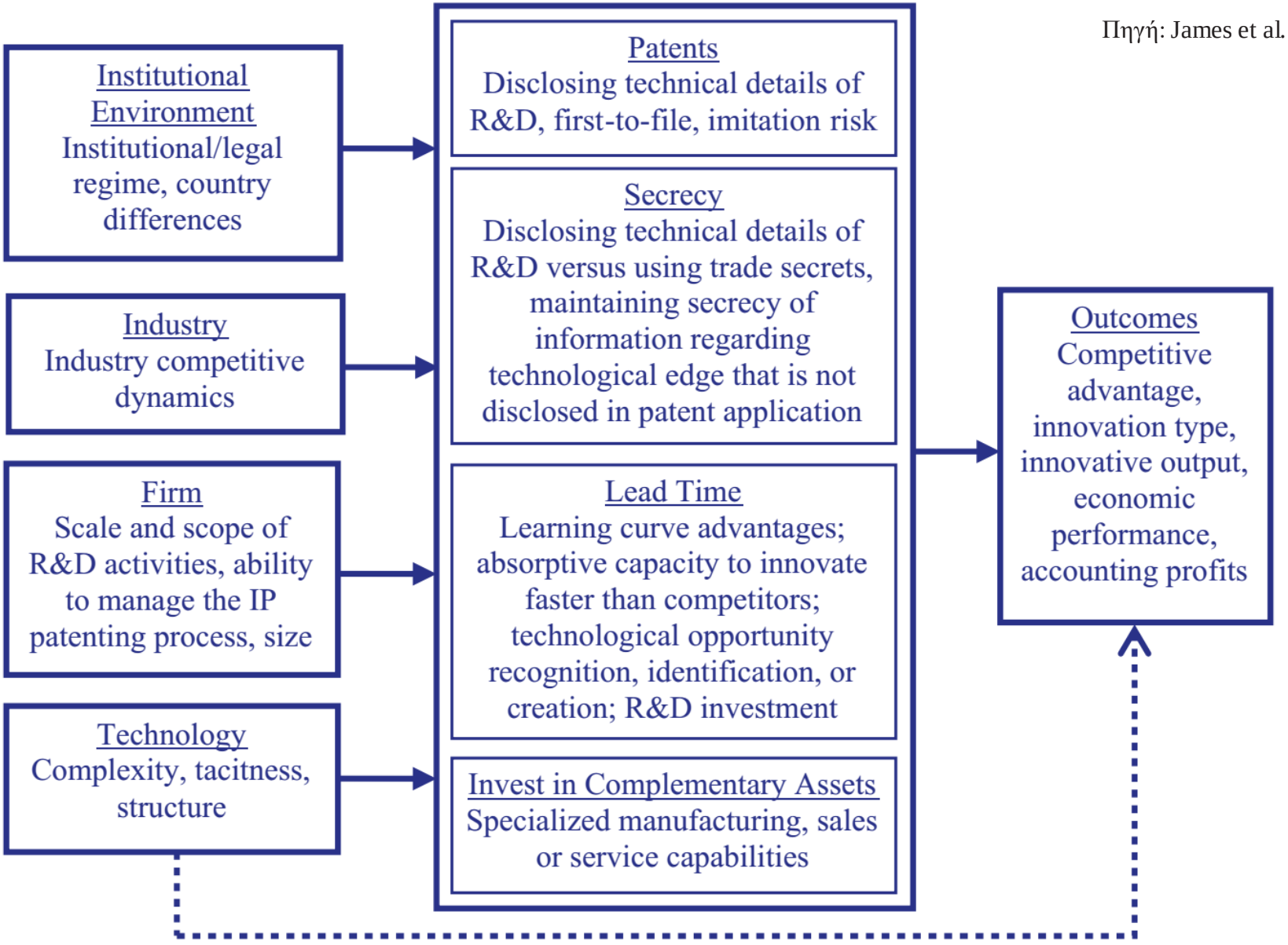
- A patent is an asset that can be:
  - Sold or licensed, like other property
  - Used to gain entry to a market, as proof of technological advantage
  - Used to exclude others from a market, for some time at least
  - Used as a marketing tool, e.g. to promote unique aspects of a product or show inventiveness

To patent or not?

- Trade Secret
  - Indefinite
  - Not registered or disclosed
  - Can be separately discovered
  - Remedy only if the secret is illegally appropriated

- Patent
  - 20 year term
  - Registered and Publicly Disclosed
  - Right to exclude others (1st takes all)
  - Remedy for infringement

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



Πηγή: James et al. (2013)

Summary of Characteristics That Drive Selection of Value Capture Mechanisms

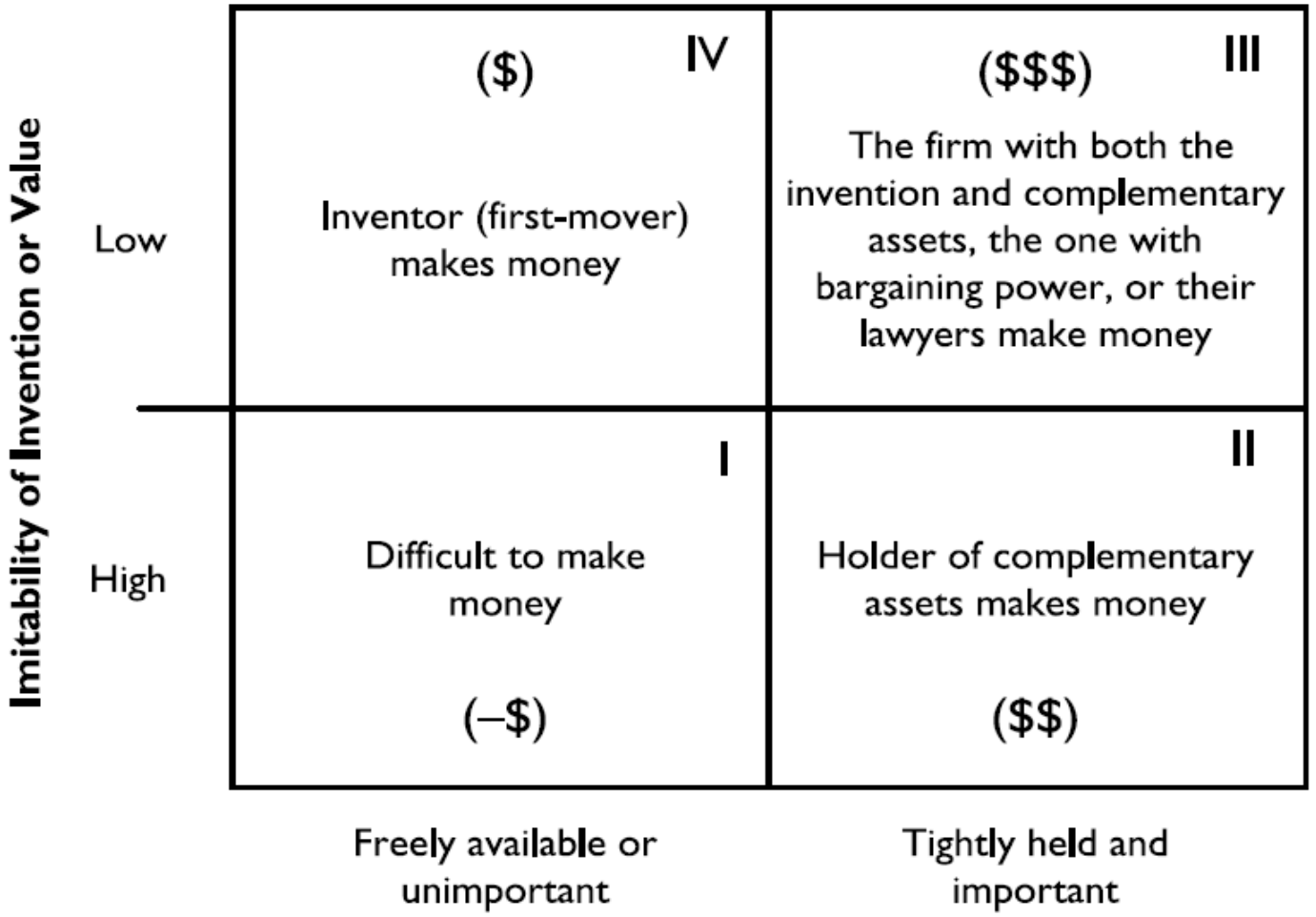
Mechanism	Factors That Affect the Effectiveness of a Given Value Capture Mechanism			
	Institutional	Industry	Firm	Technological
Patents	Strength (ranking) of intellectual property rights	Competitive intensity, number of rivals, barriers to imitation	Scale and scope of R&D, innovation activity, ability 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)

Profiting from innovation

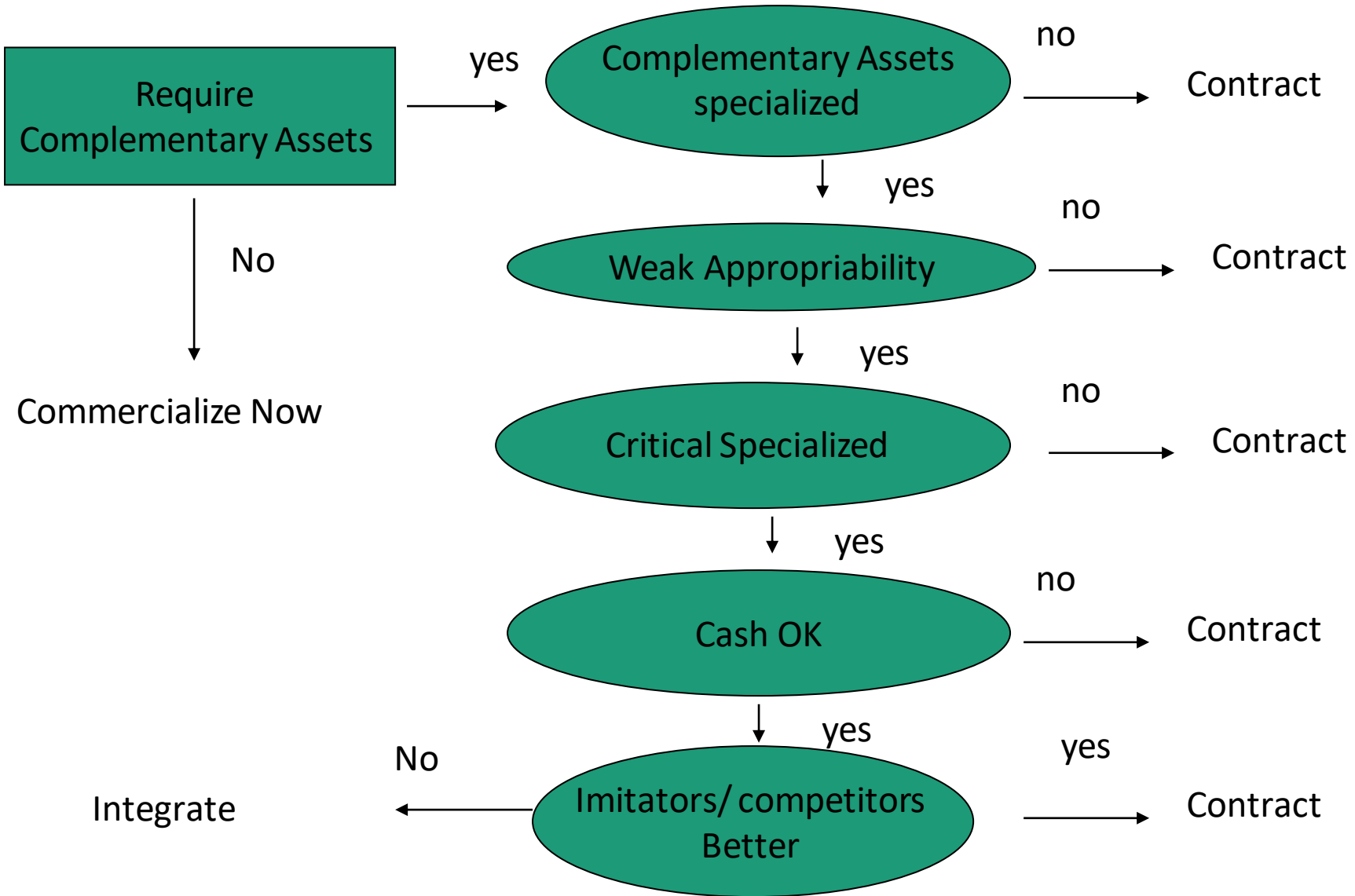
- “appropriability, and success at innovation more generally, is related not so much to the innovator’s ex-ante market share, but to the (complementary) asset structure of the innovator, management’s market entry timing decisions, and the contractual structures employed to access missing complementary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

WHO PROFITS FROM INNOVATION?



Teece (1986), Afuah (2009)

Flowchart for Integration versus Contract



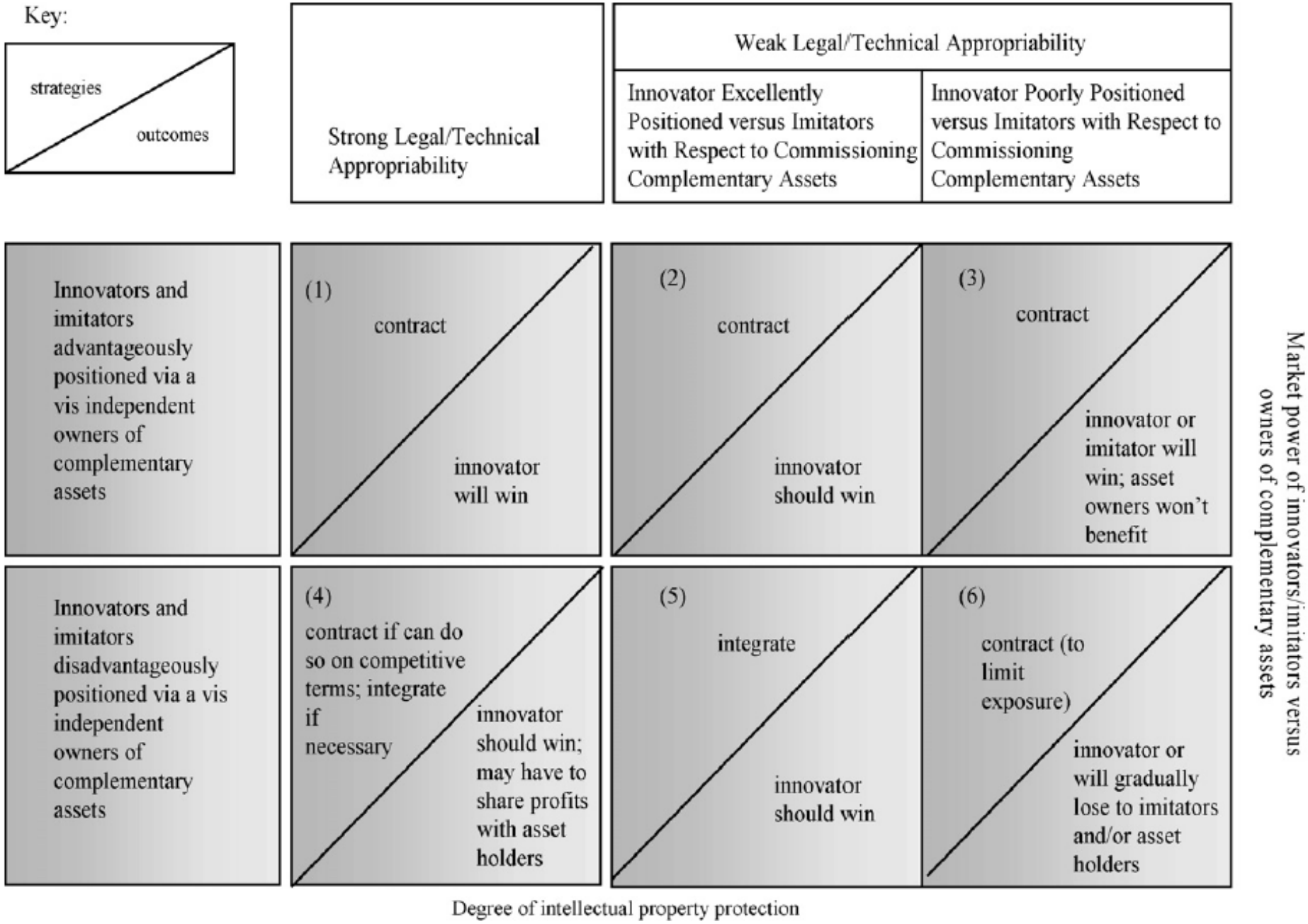


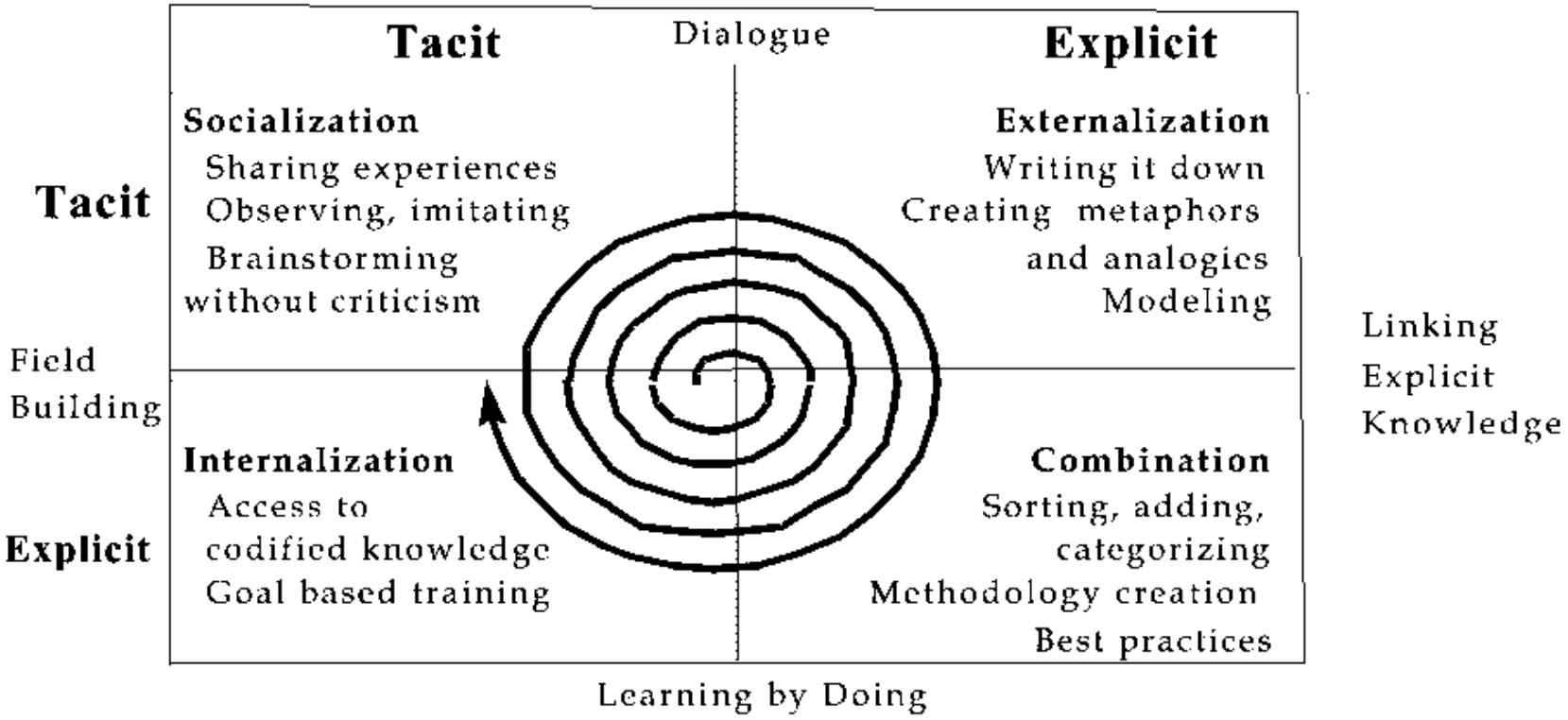
Fig. 2. Contract and integration strategies and outcomes for innovators: specialized asset case (Fig. 11 in Teece (1986)).

Dynamic capabilities

- Learning mechanisms
- Groups of people employing dynamic (meta)routines (learning and searching) in order to
  - seek new problems and solutions
  - develop and experiment with new solutions
- Based on internal and external knowledge

The process of knowledge creation

- Firms know more than their contracts can tell (Kogut &Zanter, 1992)



Nonaka and Takeuchi, 1995

The entrepreneurial challenge

- Motivation
- Coordination
- Foresight
- Vision

Individual cognition

- “Individuals develop mental models, belief systems, and knowledge structures that they use to perceive, construct, and make sense of their worlds and to make decisions about what actions to take” (Lam, 2005, p. 123)
- They filter, interpret and reconstruct incoming information through the “mental representations” they develop
- This may lead to the formation of creative ideas , new insights and consequent action
  - or may lead to biases and inertia (ibid)

Organizational cognition

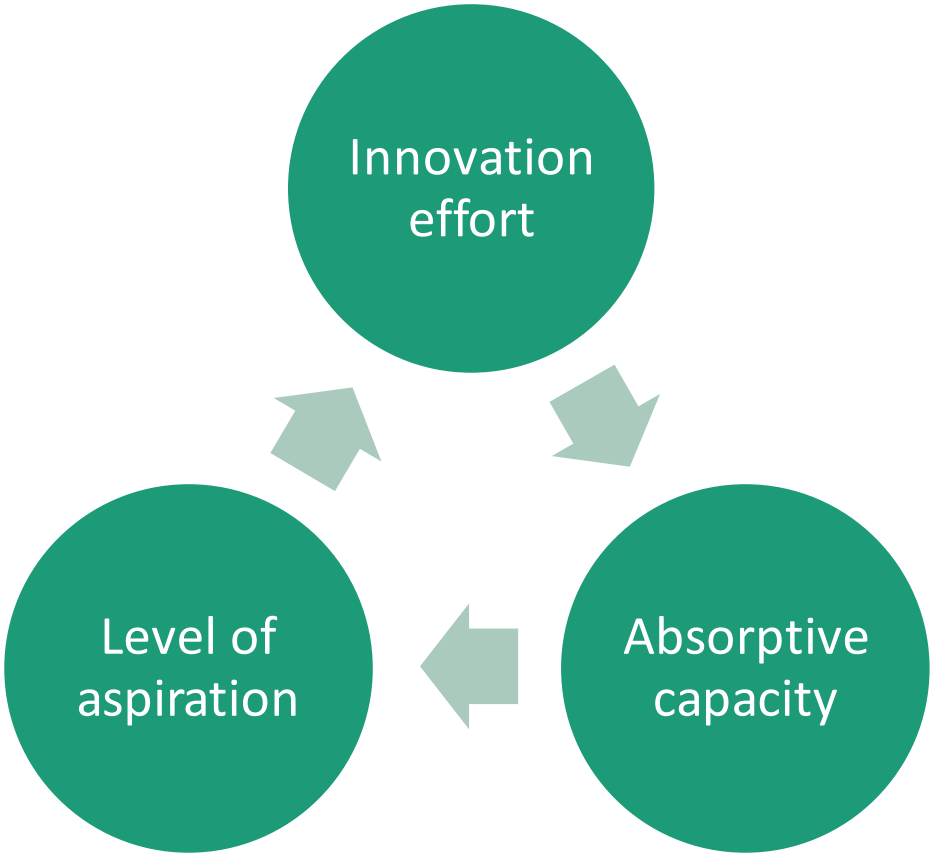
- Organizations develop collective mental models and interpretive schemes which affect managerial decision making and organizational action
  - Social process
  - Organizational embeddedness
  - Shared context
  - Communities of practice

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



Dangers

- Paradigm trap
- R&D – innovation redundance

External relations

- Interaction may lead to networks
- Dynamic transaction costs
- Strong ties
  - Frequent interactions between organizations
- Weak ties
  - Occasional interactions between members of organizations
- Networks may also get locked in through path dependence
  - Converge to shared perceptions of realities (mental models)

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Resources

- WIPO: https://www.wipo.int/portal/en/index.html
  - PATENTSCOPE: https://www.wipo.int/patentscope/en/
  - WIPO Academy: https://www.wipo.int/academy/en/
- EUIPO: https://euipo.europa.eu/ohimportal/el
  - EUIPO Academy: https://euipo.europa.eu/ohimportal/en/learning
- USPTO: https://www.uspto.gov/
  - USPTO Learning and Resources: https://www.uspto.gov/learning-resources
- European Commission-Joint Research Centre: https://ec.europa.eu/info/departments/joint-research-centre_en
- UNU-MERIT: https://www.merit.unu.edu/tag/intech/
- EC – IP Helpdesk: Europe - Case studies (europa.eu)
- les Nouvelles - December 2017 (lesi.org)
- Case Studies on Intellectual Property (IP Advantage): Search Results (wipo.int)

Toolkits

- International Trade Administration - Brochures, Toolkits & Snapshots: https://www.trade.gov/ipr-toolkits-and-snapshots
- WIPO - Toolkits: https://www.wipo.int/tools/en/gsearch.html?cx=016458537594905406506%3Ahmturfwvzzq&cof=FORID%3A11&q=TOOLKITS#gsc.tab=0&gsc.q=TOOLKITS&gsc.page=1
- EUIPO - Toolkits: https://euipo.europa.eu/eSearch/#basic/1+1+1+1/Toolkits
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  - IP Teaching Kit: https://www.epo.org/learning/materials/kit.html
  - Download modules: https://www.epo.org/learning/materials/kit/download.html
- USPTO
  - Online trademark tools: https://www.uspto.gov/trademarks/basics/online-tools