

# Business Models and Patent Strategies in Multi-invention Contexts

**Deepak Somaya**

Assistant Professor

R. H. Smith School of Business

University of Maryland

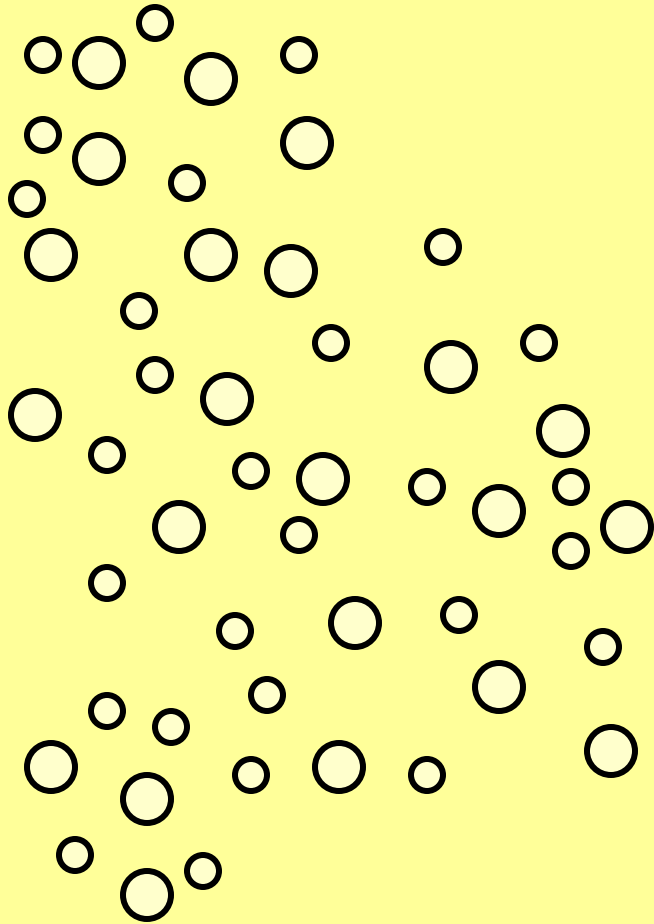
[dsomaya@umd.edu](mailto:dsomaya@umd.edu)

© Deepak Somaya

# “Multi-invention” Contexts

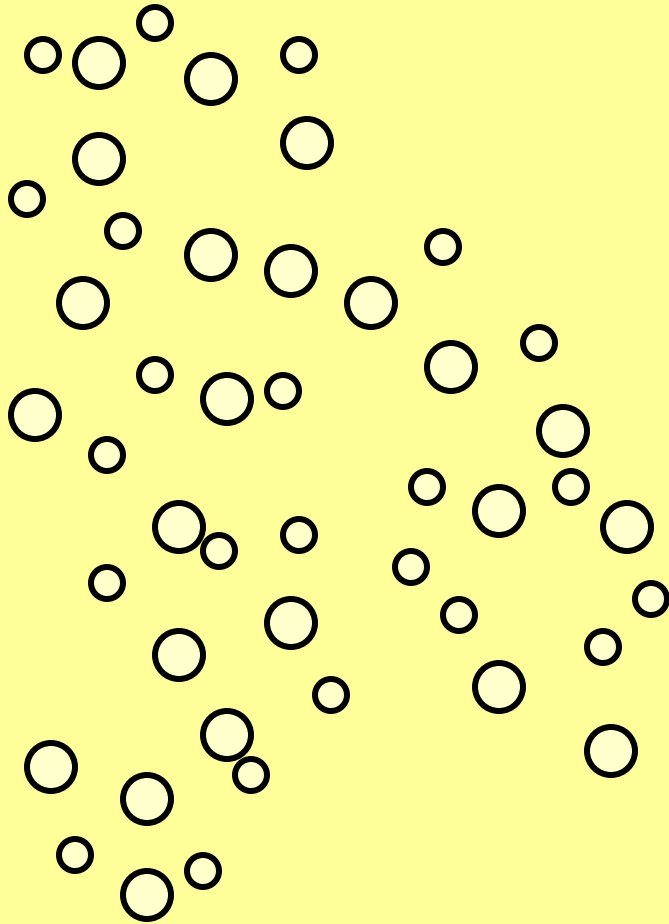
- Very large numbers of inventions combined in end products (“combination products”)
  - And ... innovation proceeding at a very rapid pace
  - Along with proliferation of (historically) very strong patents
- Examples:
  - Semiconductors, computers, data storage, telecom/ media devices, software
  - Biotechnology, especially with proliferation of genomics-enabled innovation, research tools, synthesis and enhancement (e.g. drug delivery/ dosage) technologies
  - Nanotechnologies

# Multi-Invention Context



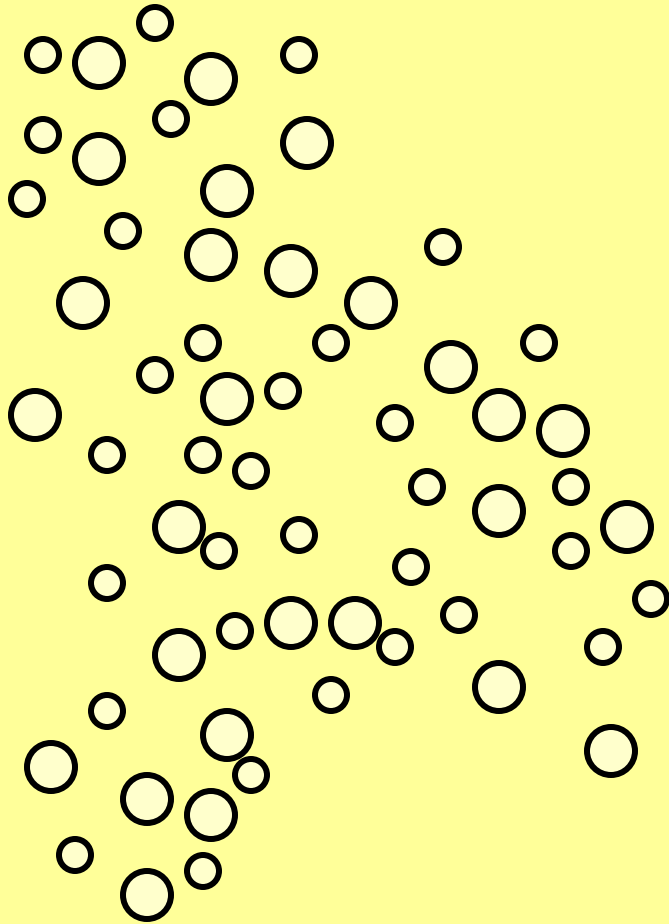
- Large number of inventions needed to make an end-product

# Multi-Invention Context



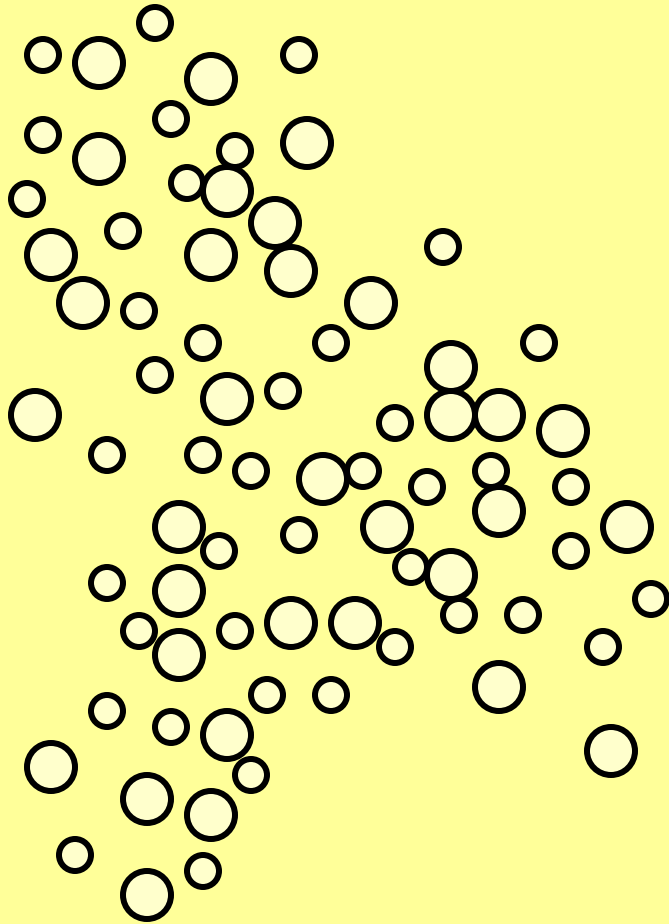
- And ...  
potentially  
getting  
denser and  
denser with  
innovation  
over time.
- Time = 1

# Multi-Invention Context



- And ...  
potentially  
getting  
denser and  
denser with  
innovation  
over time.
- Time = 2

# Multi-Invention Context



- And ... potentially getting denser and denser with innovation over time.
- Time = 3

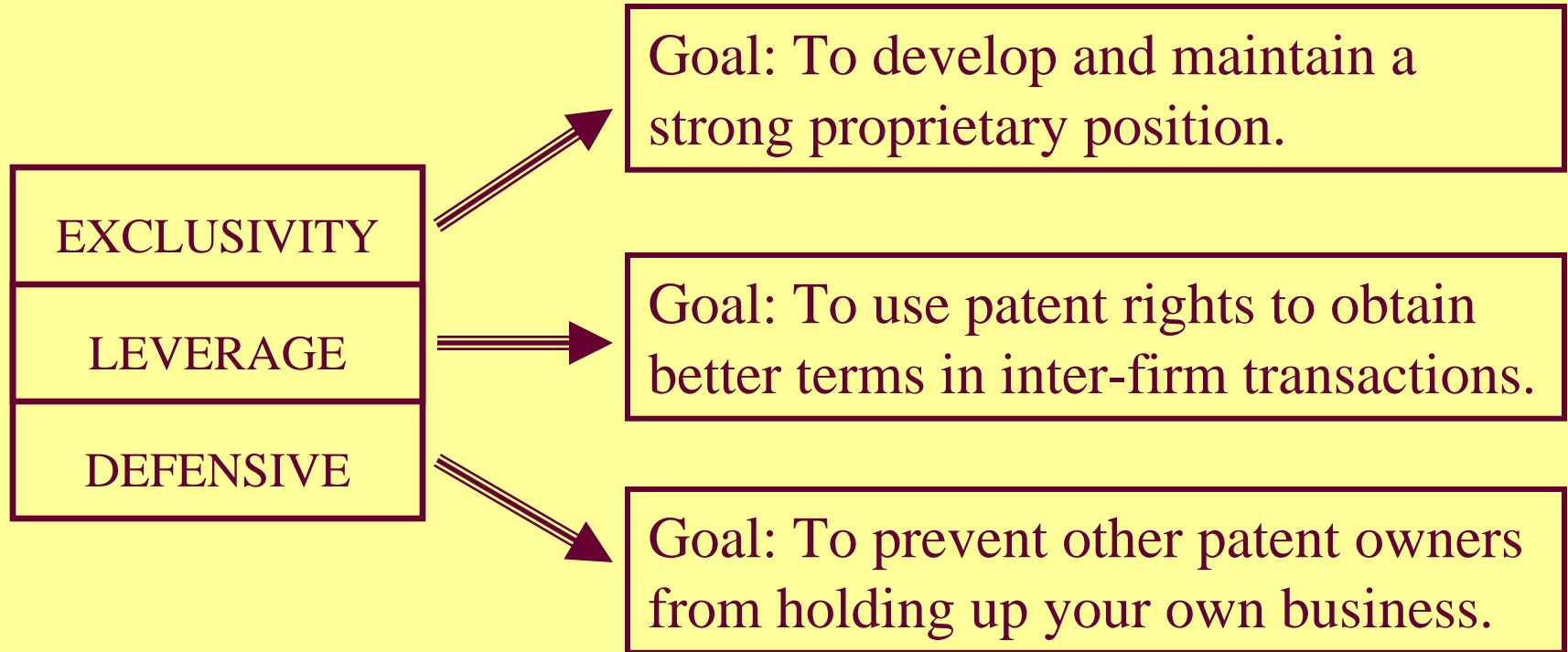
# Multi-invention Contexts Challenge ...

- **Business:**
  - What business models will work?
  - What patent strategies to pursue?
    - Both issues need to be addressed up front
  - Established companies
  - Start-ups and entrepreneurs
- **Public Policy:**
  - Patent and antitrust/competition policy
  - Industrial and Innovation policy

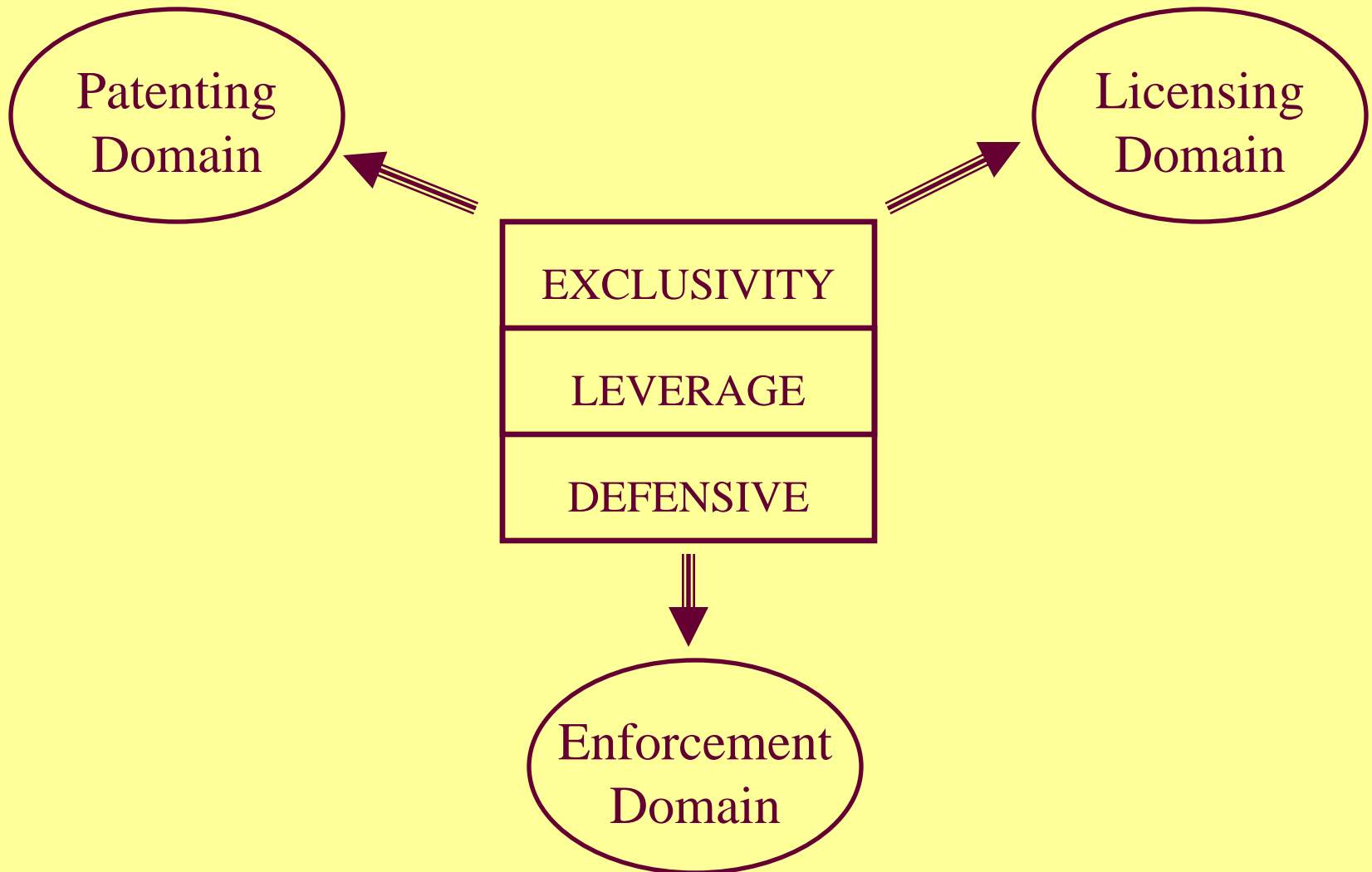
# Patent Strategy

- Some preliminaries
  - General manager perspective (not legal)
    - Minimal legalese: only need to know that “a patent is a property right that allows you to exclude others from using an invention, but you can only use the invention in ways that do not infringe others’ patents”
  - Many patent “strategies”
    - Patent prosecution strategy, litigation strategy, patent staff management, finding investors ...
    - Focus here on company strategy with patents: “what do we want to achieve in our business with our patent portfolio?”

# GENERIC PATENT STRATEGIES



# GENERIC PATENT STRATEGIES & CRITICAL ACTIVITY DOMAINS



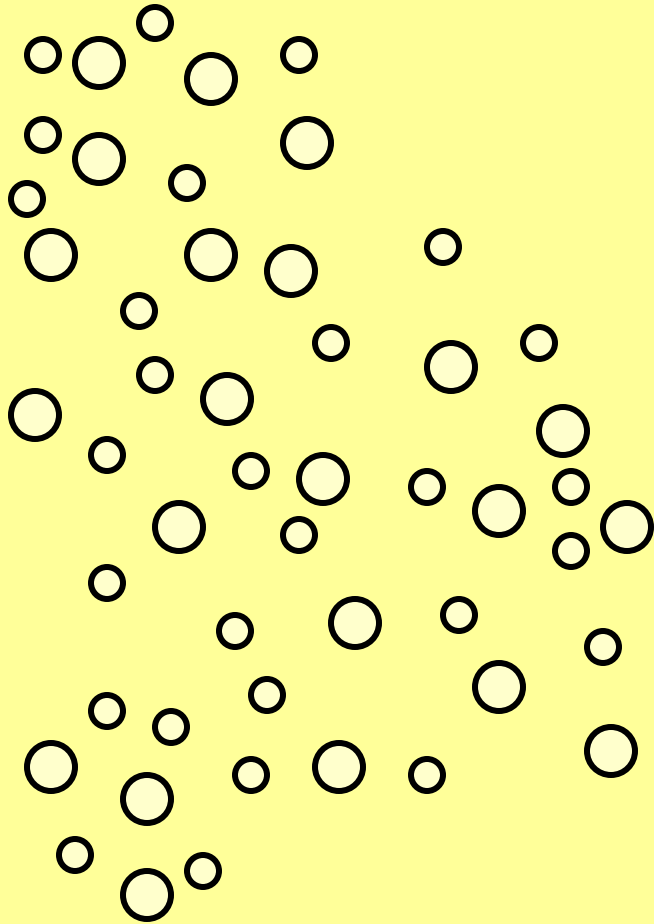
# GENERIC PATENT STRATEGIES & CRITICAL ACTIVITY DOMAINS

	Patenting	Licensing	Enforcement
Exclusivity Strategy	File / obtain “tight” protection	Less likely, seek strong terms	Aggressive enforcement
Leverage Strategy	Patents in key areas for others	Willing to license, licensing program	As a means to induce license
Defensive Strategy	Arms race, use oppositions	Cross-licensing, some in-licensing	Counter-suits, invalidation

# Generic Patent Strategies from a Firm Patent Portfolio Perspective

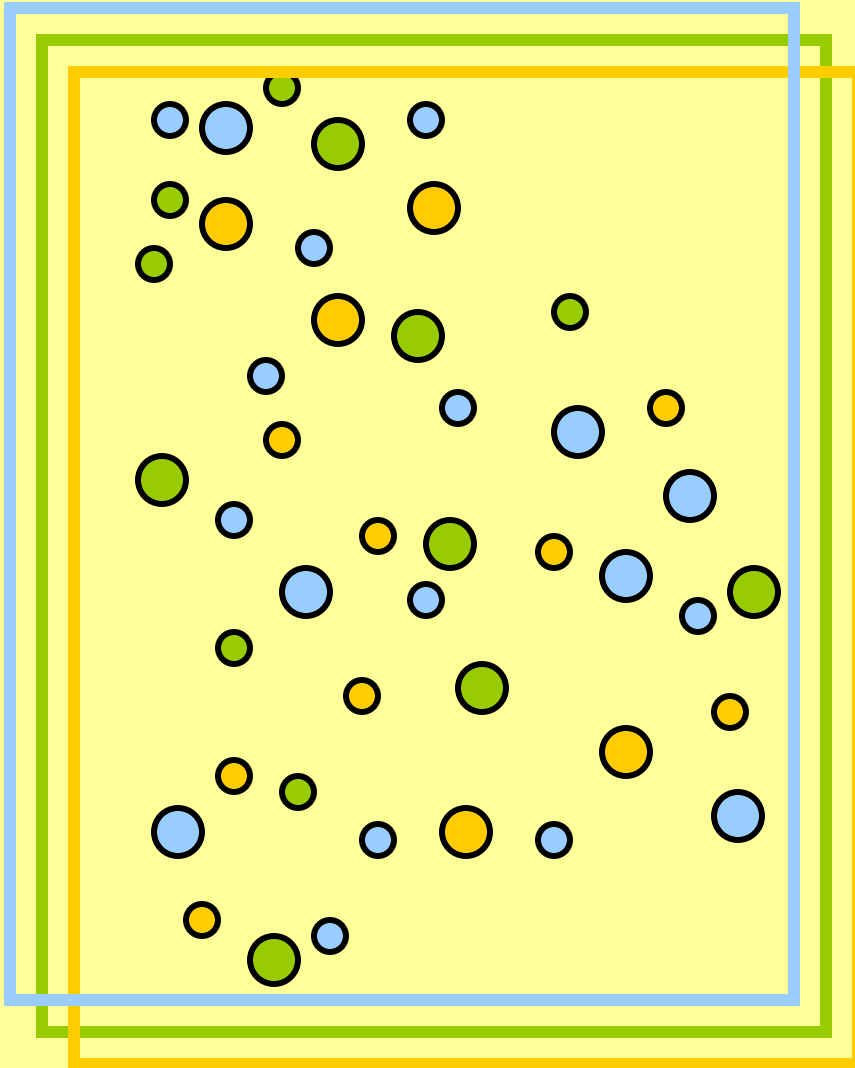
	Profit Potential: Low	Profit Potential: High
Strategic Importance: High	Defensive Strategies	Exclusivity Strategies
Strategic Importance: Low	Harvest	Leverage Strategies

# “Business Models” in Multi-Invention Contexts



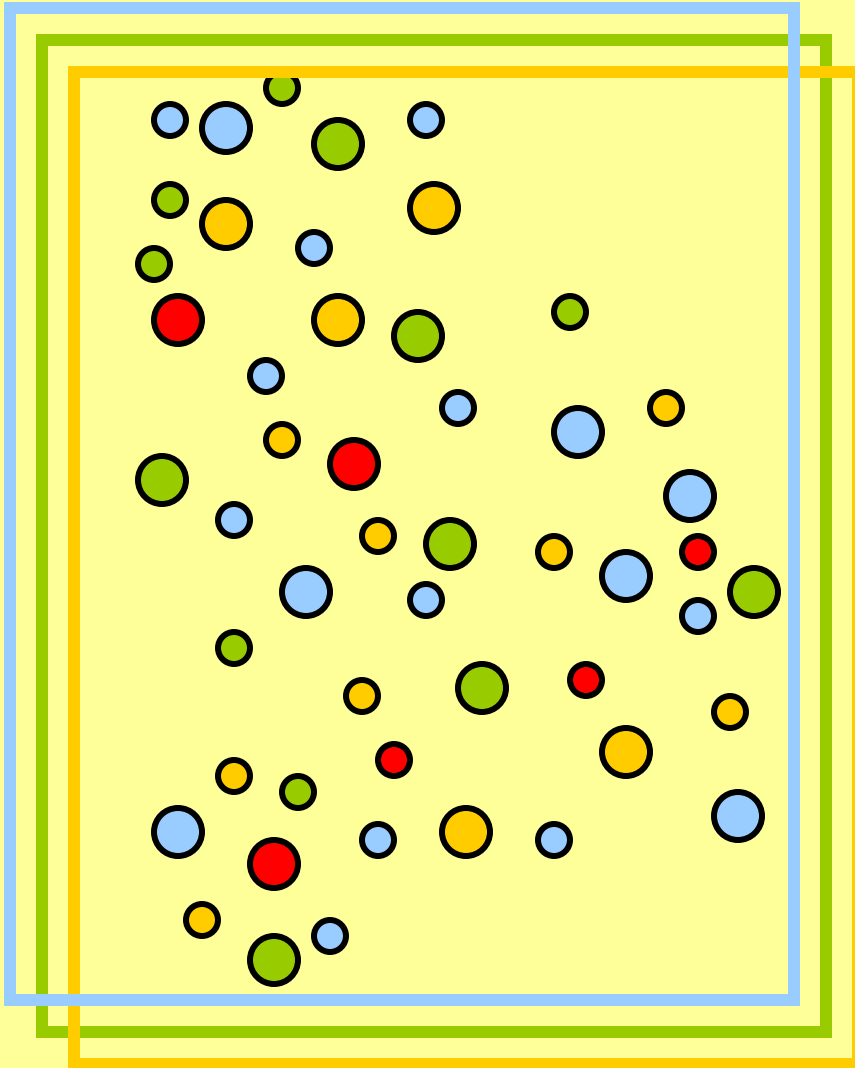
- Integrated Approaches: Build entire products in-house
- Non-Integrated Approaches: Transact for some technologies (not just IP) or components from others  
→ two sets of firms (buyers/ sellers)

# Integrated Model

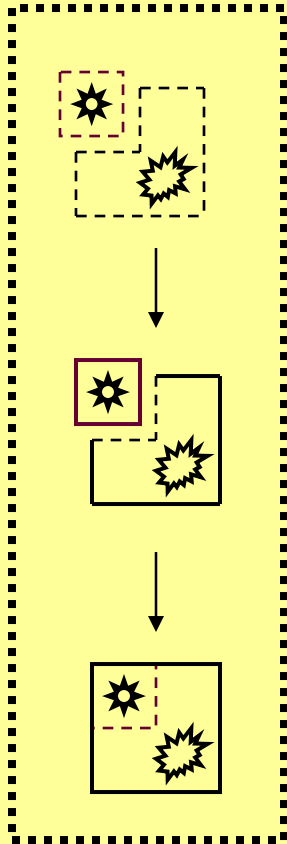


- End product made in an integrated fashion (by each firm separately).
- Major strategic challenge is to access the IP of other “market players”.
- Some defensive strategies work (patent portfolios, counter-suing, cross-licensing).

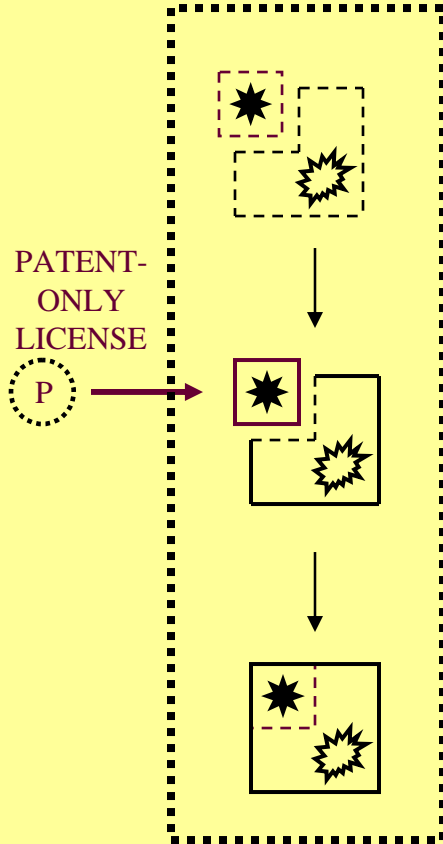
# Integrated Model - II



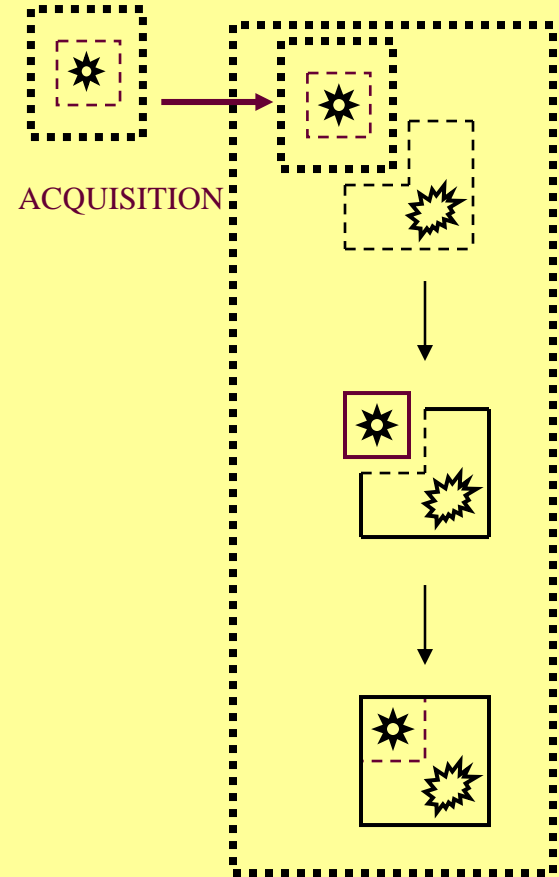
- Additional challenge from “non-market players” / “trolls”.
- Bargaining is asymmetric.
- Ex ante v. ex post problem.
- Other defensive strategies (invalidate).
- Potential for leverage strategies.



**Integrated Mode  
(with Co-Located Inventions)**



**Integrated Mode  
(with Patent-only Licensing)**



**Integrated Mode  
(with Acquisition of  
Innovative Start-up)**

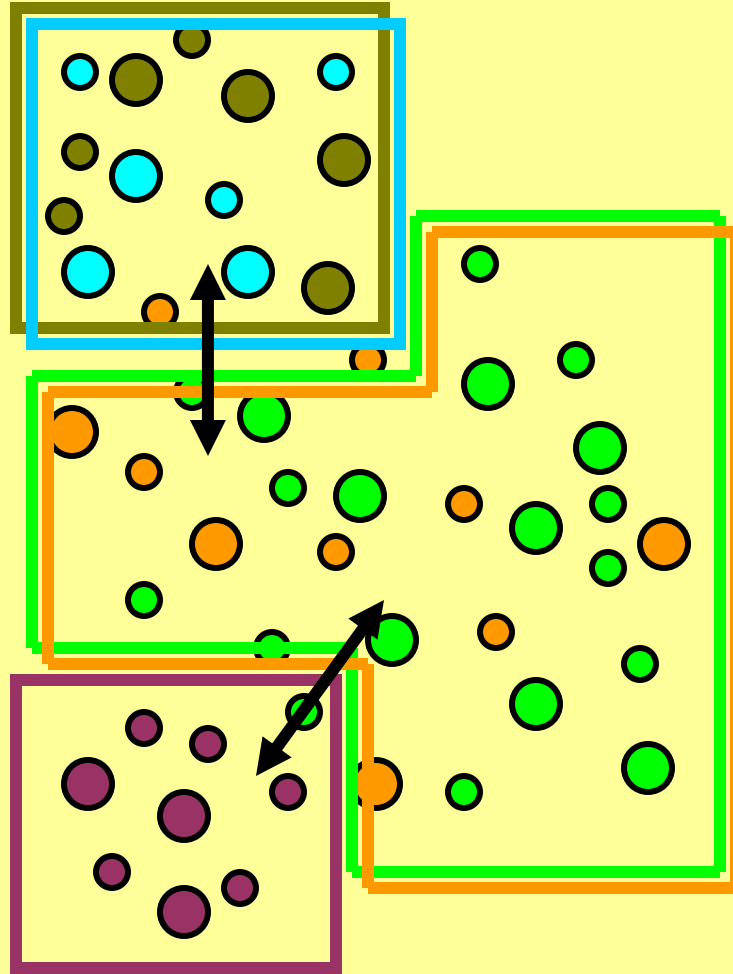
★ = FOCAL INVENTION UNIT

★ = OTHER INVENTIONS

★ = INTERNALLY DEVELOPED VERSION OF INVENTION

# Types of Integrated Business Models

# Non-Integrated Business Models

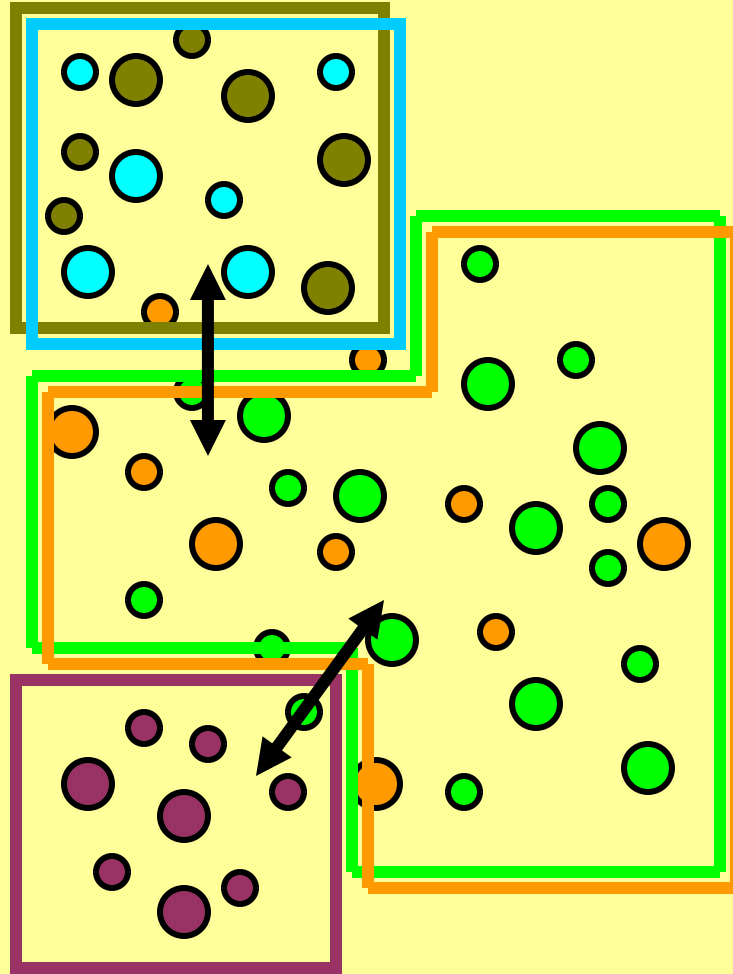


- Innovation is more disaggregated
- Firms specialize in different parts of the innovation landscape
- Firms transact with each other for components or technologies

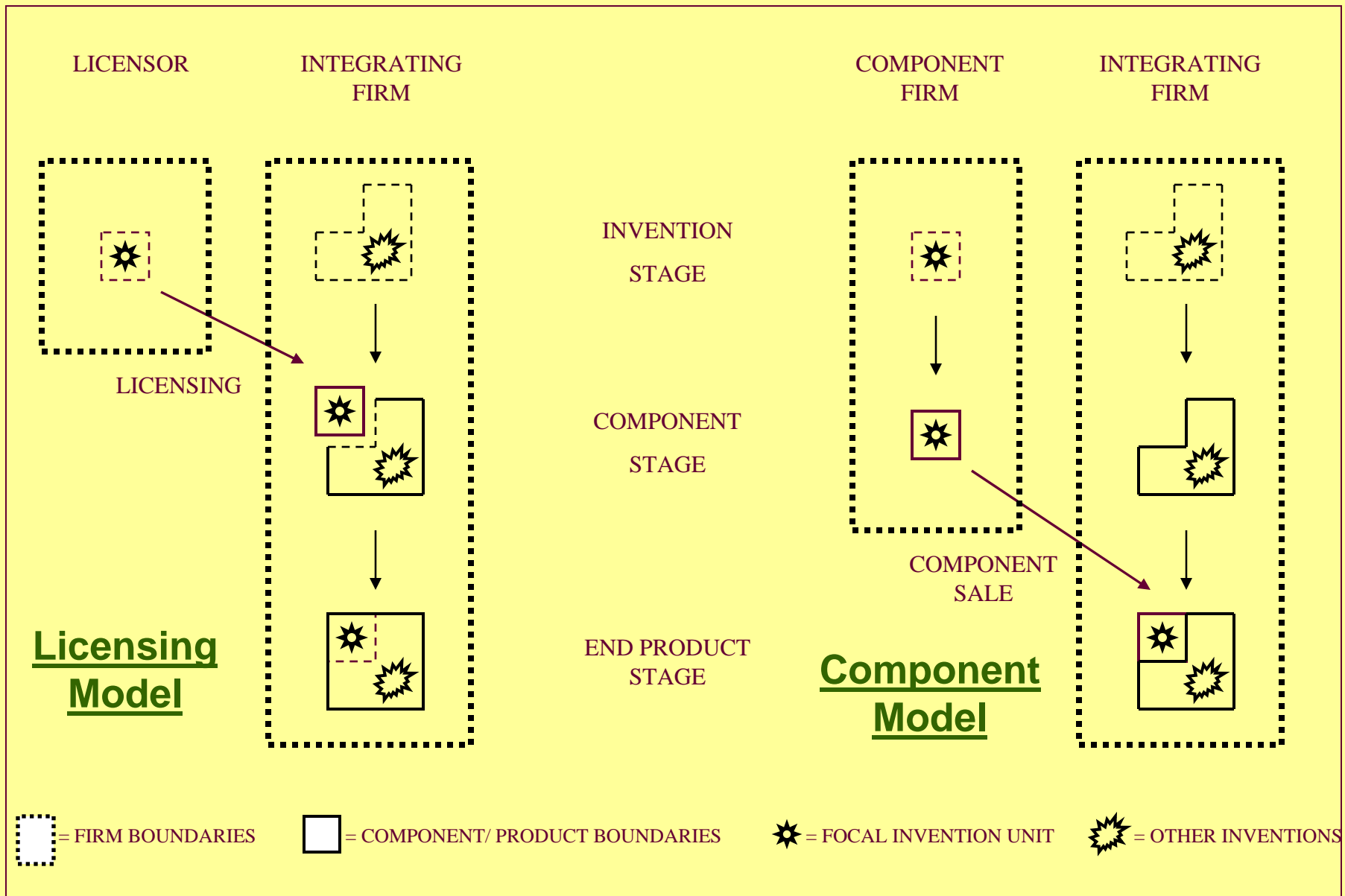
# When are Non-Integrated Business Models Superior?

- Innovation is modular
  - Relatively easy to combine technologies
  - Well established interface standards exist
  - Tacit knowledge in new technology is relatively low
- Transaction costs are low
  - Agreement on value of the technology
  - Can measure performance/ attributes of the technology
  - Fewer strategic concerns about the technology
- Non-integrated firms have a significant innovation advantage
  - Access to science, more motivation, focus, etc.

# Non-Integrated Business Models

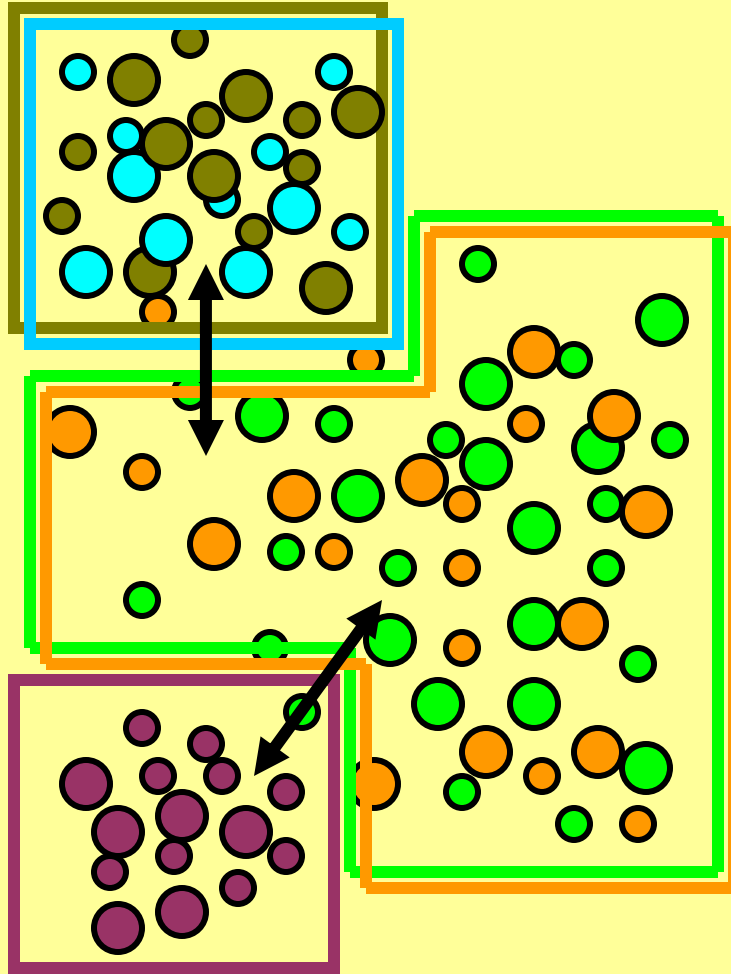


- Innovation is more disaggregated
- Firms specialize in parts of the innovation landscape
- Firms transact with each other for components or technologies



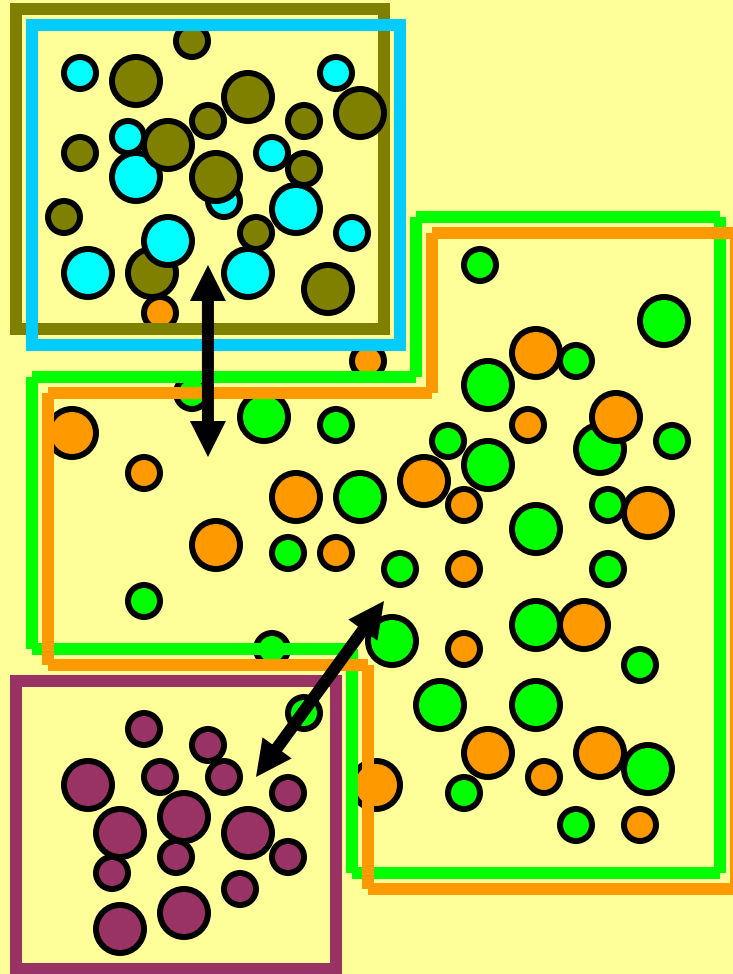
# Non-Integrated Business Models in Multi-invention Contexts

# Non-Integrated Modes



- Licensing versus componentization  
– Kentron
- An “alliance” with buyer may sometimes be necessary
- Complementary buyer and seller perspectives

# Non-Integrated Modes: Patent Strategy



- Technology seller:
  - Exclusivity possible (bottom left)
  - May require some defensive (top left)
  - Pure leverage strategy may be a fallback
- Buyer/integrator:
  - Patent (/other) strength in complementary space
  - Potential to become “standard platform”
  - Long-run “upstream” capability development

# Conclusion

- Multi-invention contexts are proliferating
  - With rapid innovation and widespread patenting
- Many business models may be used to commercialize innovation in such contexts
- Companies may also adopt different patent strategies to reach their business goals
- Business models and patent strategies are interrelated
  - Both need to be thought through carefully and early