

Competition Law and Innovation: Dissecting the Interplay

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1. Digital revolution as a systemic Schumpeterian innovation (1)

- Systemic Dimension 1: the economy
 - + “creative destruction” of old markets and old industries
 - + Examples: Big data, autonomous driving, and “Internet of Things”
 - + innovation not limited to existing markets / industries but is restructuring entire economy, creating new markets and new industries
- Systemic Dimension 2: the regulatory framework
 - + digital revolution also changes basic characteristics how economy and society works
 - + current discussion about the adaptation of the entire legal and regulatory framework to a digital society (esp. IP law, consumer law, data protection law, media law etc.)
 - + EU: Digital Single Market Strategy etc.

1. Digital revolution as a systemic Schumpeterian innovation (2)

Question: How can competition law deal with innovation in this digital revolution?

Structure of presentation:

1. Digital revolution as a systemic Schumpeterian innovation
2. Competition and innovation: A difficult relationship
3. How does competition law deal with innovation?
4. Need for innovation-specific concepts and methods
5. Data-driven innovation, competition law, and other regulatory regimes

2. Competition and innovation: A difficult relationship (1)

Basic problems: static and dynamic concepts of competition (1)

Economics: “competition” and “innovation” are two separate problems

- Competition: => static concept of competition
 - + perfect competition leads to economic (static) efficiency which is defined in regard to a given set of products / technologies
 - + theoretical industrial economics (based upon game theory)
 - > analysis of price/quantity (Nash) equilibria (e.g. oligopoly models)
 - + market failure: if prices > (marginal) costs => deadweight losses!
 - Innovation = change of set of products / technologies
 - + not integrated in general equilibrium theory / efficient allocation
 - + “dynamic efficiency” is theoretically not clearly defined
 - + market failure: incentive problems / public good: => IP / subsidies
- => Innovation is not integrated in static concept of competition !

2. Competition and innovation: A difficult relationship (2)

Basic problems: static and dynamic concepts of competition (2)

- Static concept of competition has led to static assessment concepts in competition law
 - Economic concept of market power:
 - + scope for price increases / reduction of output (monopoly model)
 - Static assessment concepts in competition law
 - + Market definition / product market: SSNIP test (can a firm increase profitably price for 5 - 10%?) in regard to current products for identifying relevant competitors => static market definition
 - + Competitive assessment: looking primarily on price increases
 - But: innovation is often about creation of new markets
- => Innovation dimension of competition does not fit well into this static assessment framework

2. Competition and innovation: A difficult relationship (3)

Basic problems: static and dynamic concepts of competition (3)

- “Common sense” idea of competition as a rivalrous / dynamic process
 - Concepts of **dynamic competition**, which try to integrate innovation
 - + Schumpeterian competition: as an innovation-imitation process, creating new markets through disruptive innovations
 - + Workable competition: in (empirical) SCP-paradigm innovation was part of market performance (=> “effective competition”)
 - + Hayek's "competition as a discovery procedure", in which new knowledge is generated in a trial and error process
- => outdated and/or not well developed theoretically and empirically!
- Dynamic / innovation aspects of competition are not well-researched (e.g., Farrell 2006: advantages of diversity = „dark matter of competition“)
- => No clear theory of „dynamic competition“ or „innovation competition“!

2. Competition and innovation: A difficult relationship (4)

Competition and innovation: Current state of knowledge (1)

Schumpeter vs. Arrow:

- Schumpeter (1942): larger firms / higher firm concentration positive for innovation through better appropriability etc. (Schumpeter hypotheses)
- Arrow (1962): firm with market power can have less innovation incentives due to "replacement effect"

Empirical studies about Schumpeter hypotheses:

- Firm size \Leftrightarrow innovation: no innovation-optimal firm size
- firm concentration \Leftrightarrow innovation: no innovation-optimal firm concentration (some discussion about „inverted U-curve“ but empirically unclear)
- Important: Results are different for different industries and technologies

[But: direct empirical studies about mergers show mostly negative effects on innovation]

2. Competition and innovation: A difficult relationship (5)

Competition and innovation: Current state of knowledge (2)

Theoretical Industrial Economics:

- large number of models that analyze impact on innovation incentives
- distinctions betw. models which
 - + directly consider innovation competition (as patent race models)
 - + take also into account pre-innovation product markets
- other important distinctions:
 - + perfect or imperfect patent protection / appropriability conditions
 - + product or process innovations
- Results:
 - + depending on assumptions very different results, leading to useful insights for case analysis, but the insights remain very limited

2. Competition and innovation: A difficult relationship (6)

Competition and innovation: Current state of knowledge (3)

Insights from innovation economics perspective:

- Innovation processes are very complex phenomena, which only partly can be analyzed with game-theoretic oligopoly models
- Characteristics: high uncertainty and unpredictability, creativity, heterogeneity of firms (diversity), parallel experimentation and learning etc.
- Evolutionary approaches to innovation / industrial dynamics

Insights from business / management studies:

- Resource-oriented / knowledge-based theories of the firm
- Strategic management theories

=> they may provide many specific insights that have not been used sufficiently in competition law!

3. How does competition law deal with innovation?

Problems:

- Economic knowledge about innovation dimension of competition (and applicable empirical methods) is very limited
 - + therefore hard to develop general criteria and case groups
- Innovation does not fit well into static assessment concepts
- How to deal with unpredictability of innovation?

Consequences:

- Application bias: in many cases innovation effects are ignored (also: dynamic efficiencies), focussing only on price effects on consumer welfare, or only considered as “additional” effect
 - + danger: price effects seen as more important than innovation effects
- Experimentation: Partly agencies try to investigate innovation effects, often in an experimental way, but often without a clear theoretical framework, leading to the critique of being speculative

4. Need for innovation-specific concepts and methods (1)

- Discussion that static framework of competition analysis is not suitable for analyzing dynamics of innovation competition
[e.g., Evans/Hylton (2009): „Static-ization of antitrust“; Sidak/Teece (2009): importance of „capabilities“; Kerber (2011): importance of diversity]
=> necessity to think anew about suitable concepts of “dynamic competition” or “innovation competition” !
- Pluri-theoretical approach: Using insights and methods from different theoretical approaches
 - + not only: game-theoretic industrial economics
 - + innovation economics and evolutionary economics
 - + management and business studies (strategic management theory, resource/knowledge-based theories of the firm)
 - + (perhaps also behavioural approaches)

4. Need for innovation-specific concepts and methods (2)

Need for innovation-specific assessment concepts

- Example merger control
- Type 1 cases: level of innovation projects
 - + mergers where parallel innovation projects can be directly identified
 - + agencies are protecting innovation competition betw. parallel R&D projects w. divestiture of R&D projects (with all necessary resources)
- Type 2 cases: level of resources for innovation
 - + mergers where agencies protect the existence of several competitors with capabilities / resources to innovate
 - + early US case: Lockheed/Northrop in defence industry
 - + recent EU case: GE/Alstom (2015): market for gas turbines
 - > divestiture of all necessary resources to smaller competitor

4. Need for innovation-specific concepts and methods (3)

Towards a more "resource-oriented" approach (1)

- Problem: innovation itself is hard to predict, but often preconditions for innovation can be identified
 - Necessary for innovation: (enabling innovation activities)
 - + specific knowledge / capabilities / knowhow / IPRs / specialized assets, R&D staff etc.
 - Developing an analytical assessment framework that focusses much more on the necessary resources for innovation
 - + against monopolization / concentration of resources
 - + against strategies that block or control further innovation
 - + ensuring access to critical resources / bottlenecks
 - + ensuring sufficient number of independent sources of innovation
- => Strategy for „open markets“ / „openness“ for innovation

4. Need for innovation-specific concepts and methods (4)

Towards a more "resource-oriented" approach (2)

- „Market definition“:
 - + identification of relevant innovation competitors not through product markets but through analysis of innovation activities and innovation capabilities / resources
 - + („innovation market“ concept already suggested this!)
 - Analysis of necessary resources is already done in different contexts:
 - + analysis of “potential competition” and entry barriers
 - + access to necessary resources, e.g.,
 - > in vertical contexts (exclusionary conduct) and
 - > in “essential facility” situations
- => New problem: role of the resource “data” in digital economy

5. Data-driven innovation, competition law, and other regulatory regimes (1)

Big Data and data-driven innovation

- data as a resource for innovation (OECD 2015: data as infrastructure)
- critical: access to data
- other critical resources in digital economy?
 - + capabilities for data analytics, human resources (e.g., data analysts), algorithms ...

Data, innovation, and competition law

- Merger cases:
 - + data as a resource in mergers leading to dynamic efficiencies but also can impede innovation competition
- Abuse of dominance (Art. 102 TFEU)
 - + refusing access to data as abusive behaviour
- ...

5. Data-driven innovation, competition law, and other regulatory regimes (2)

Systemic character of Big Data and digital economy

- Need for analysis of interplay betw. competition law and other regulatory regimes in regard to data / digital economy (IP law, data protection law, consumer law, media law etc.)
- more cooperation and integration of regulatory regimes, and perhaps new interfaces betw. regulatory regimes

Interplay with other regulatory regimes (examples)

- Data protection law \Leftrightarrow competition law:
 - + data portability / regulation of privacy policies influences market power through data, and competition influences privacy
- IP law \Leftrightarrow competition law:
 - + danger of new IPRs on data for competition and market power
 - + IPRs on technical interfaces influence competition (more interoperability through weakening these IPRs)