

Machine Learning and AI as Business Tools: Threat or blessing for competition?

Algorithms from a competition agency's perspective

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Dr. Sebastian Wismer
General Policy Division
(G2 – Unit for Digital Economy)

Outline

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- Context: Competition enforcement in a digitalized world
- Algorithms – different kinds, various use cases
- Pricing algorithms and collusion
- Investigating algorithms in practice
- Concluding remarks

The views expressed are those of the presenter and do not necessarily reflect those of the Bundeskartellamt.

Competition enforcement in a digitalized world (a German perspective)

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Conceptual work	Cases
Market power of platforms and networks Competition law and data	Abuse cases: Facebook, Amazon, CTS Eventim Merger cases involving platforms: online dating, real estate, ticketing Online retail cases Sector inquiries (i.a. online advertising)
Algorithms and their implications on competition	

Legislation
Last amendment of Competition Act: Market power factors for platforms/networks, zero-price services, merger threshold based on transaction value Upcoming amendment: particular focus on abuse control (platforms, data)

Algorithms – different types, various use cases

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- Concept of „algorithm“ rather broad
 - Sequence of operations to solve certain (class of) problem(s) – analogy: (implementation of) „cooking recipe“
 - But also covers advanced ML methods
- Many use cases even when focusing on „business context“, e.g. data collection/monitoring, pricing, ranking, matching, auctioning, „algorithmic consumers“, logistics/internal optimization
- Various kinds of algorithms – further distinctions e.g. by inputs, degree/type of learning, interpretability, identity of developer
- Should not lose sight of positive effects of firms` use of algorithms

Pricing algorithms and collusion

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- Economic theory provides mixed picture:
 - Notion of collusion? Implicit vs. explicit collusion?
 - Potential improvement of *stability* of horizontal collusion (higher speed and increased transparency, but also counteracting factors)?
 - Effect on *emergence* of collusion?
- Practitioners perspective:
 - Case-by-case assessment – little case practice so far
 - Relevance of questions – e.g. on liability or on delineating legal parallel behavior from illegal coordination – might vary
 - Still helpful to distinguish between (hypothetical) case scenarios

Use of pricing algorithms in different scenarios

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- Algorithms as support / facilitators of „traditional“ anticompetitive practices → “messenger” scenario (e.g. Poster case)
- Algorithm-driven collusion between competitors involving a third party → “hub & spoke” scenario
 - Awareness of reliance on same “hub” on part of “spokes”?
 - Special case: Delegation of strategic decision to common agent
- Collusion induced by the (parallel) use of individual algorithms → might be facilitated by “descriptive” or “black box” algorithms
 - Unilateral intelligent adaption to existing or anticipated conduct of competitors vs. collusion?
 - Boundaries of explicit collusion? Accountability/liability?

Investigating algorithms in practice

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- Full investigation of algorithm functioning might not always be necessary
- Potential investigative approaches – depending on case at hand:
 - Ask for description of implemented principles
 - ...and algorithm's role in business processes
 - Internal documents as potential evidence
 - Ask for real (past) input/output combinations
 - Ask for (parts of) the source code + information on environment and interfaces
 - Simulation studies of different kinds

Concluding remarks

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- Increasing importance of algorithms across sectors
- Important to keep in mind positive effects
- „Black box“ algorithms autonomously building a cartel?
- Not mentioned: algorithms in a vertical setting, market power, abusive conduct, potential relevance in merger control
- Difficult to anticipate potential future scenarios – especially when promoted by technological developments

Thank you for your attention.

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