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# **Coordination and pricing algorithms**

From cigar smoke-filled rooms to artificial intelligence – has anything changed?



# Agenda

**1** ALGORITHMS AND RPM

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**2** COORDINATION VIA  
ALGORITHM

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**3** THE CHALLENGE FOR  
ENFORCERS

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1

# Algorithms and RPM

# Resale price maintenance and algorithms



RPM = focus area in the UK elsewhere in Europe



Software which matches or beats the retail price of rivals is generally positive news for consumers



But the same software can quickly identify 'maverick' dealers triggering downward price competition



Suppliers must therefore be careful not to cause RPM indirectly through complaints or pressure



Enforcers acknowledge that RPM can be made more effective and widespread through price matching software – so could be an aggravating factor justifying a higher fine

2

# Coordination via Algorithm

# Coordination via algorithm

1

Human cartels implemented by machine

3

Collusion via self-learning AI

2

Hub and spoke arrangements where the algorithm provider is the hub

4

Tacit collusion (anti-competitive outcome without violation)

# Conventional cartel can be implemented by algorithm

- *Posters case*: Trod and GB Posters agreed not to undercut each other's prices for certain posters and frames sold on Amazon
- Algorithm-based re-pricing software was used to coordinate prices for posters
- UK:
  - Trod was **fined** £163,371 by the CMA with GB obtaining immunity
  - Trod's director was **disqualified** and cannot act as a director of any UK company for a period of five years
- US: Trod pleaded guilty in federal court to price-fixing scheme and was fined \$50,000.

The investigation is said to have ultimately led to the company's insolvency

**GB POSTERS**

**TROD**  
(retailer)

**amazon**



# 'Hub and spoke'

1

'Hub and spoke' cartels can arise where independent players ('spokes') coordinate through a third party ('hub') – may be instigated by hub or spokes.

2

The theory: 'hub and spoke' could arise if competitors decide, instead of using their own data and algorithms, that it is more effective to delegate their pricing decisions to a common intermediary which provides algorithmic pricing services

3

Price competition reduced/eliminated even though competitors are not expressly fixing the price

# Self-learning algorithms

## Cartels via robot?

- What if algorithms decide to collude even though their designers did not intend/plan this?
- Futuristic worry – for now
- Would there be a ‘meeting of minds’ for which a human could be punished?
- How far can concept of human agency be stretched to cover this sort of conduct?
- Should there be strict liability/compliance by design – i.e. in-built safeguards?

# Pricing algorithms leading to tacit collusion?

- Some agencies worry that the increased use of algorithms could lead to ‘tacit collusion’ where consumers lose out (by paying higher prices) but without a competition law violation
- Why? Growing market transparency and high speed algorithmic reactions to price cuts could remove the incentive to cut prices (since the benefit would be short-lived)
- As a result, firms could reach a supra-competitive price determined by algorithm
- So far just a theory but UK CMA thinks in some cases pricing algorithms could present the “missing piece” of the puzzle
- At the same time, personalised pricing and differentiated markets could make it difficult for firms to coordinate pricing

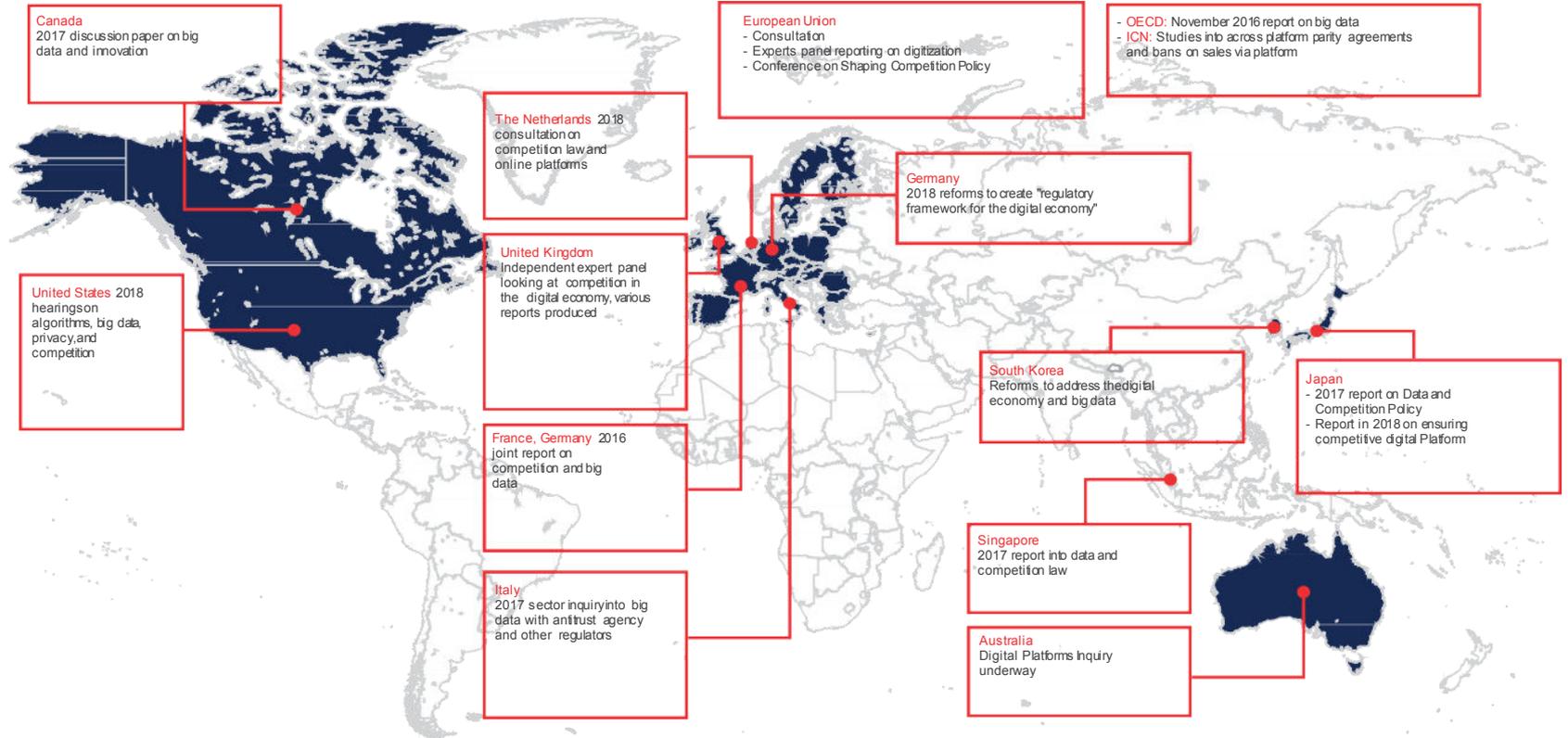
3

# The Challenge for Enforcers

# Challenge for enforcers

- Where market transparency is high – unlawful collusion and “mere “parallel conduct may look very similar
- The complexity of algorithms and ability to evolve
- So agencies are:
  - looking to deepen understanding of the effect of algorithms on competition and consumers in online markets
  - investing in both in-house ‘technological’ expertise and in new digital forensic tools and investigative technologies to more effectively uncover, investigate and take action against unlawful activity

# ANTITRUST AGENCIES AROUND THE WORLD GRAPPLING WITH DIGITAL



# Hot off the press..

## Sharper tools



**CMA chair is demanding new tools to address “twin challenges” posed by the digital economy and declining public confidence in competition**

- Faster investigations
- Widening use of interim measures
- Greater powers to impose remedies after market studies/investigations
- Tougher sanctions for supplying false or misleading information
- Faster appeals
- Mandatory notification of certain mergers

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