

# Algorithm-driven Business Conduct: Competition and Collusion

**Rob Nicholls**

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# Context

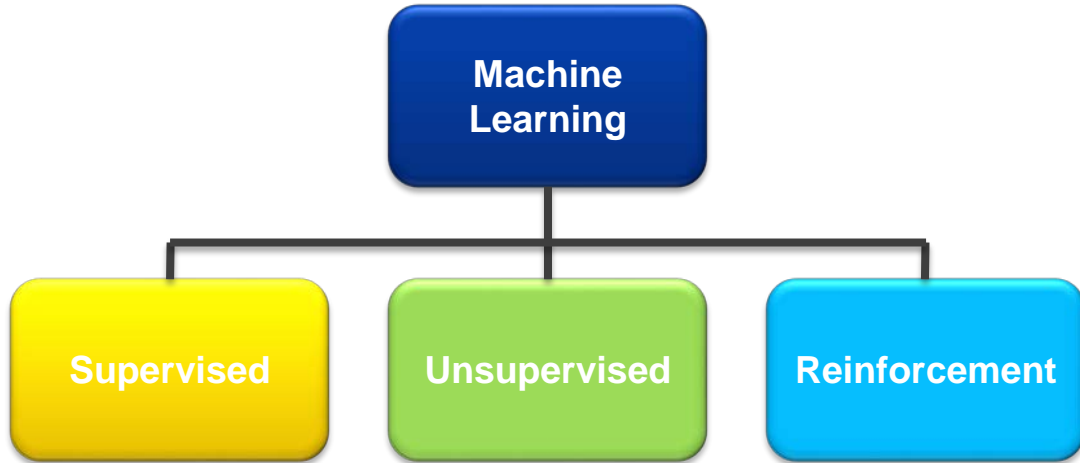


**iPhone X**



**Galaxy S8**

# More context



## Genetic algorithms

Parent A: 1101101011010101

Parent B: 0011011010101010



Child: 0111101010101110


# Ezrachi and Stucke scenarios

Scenario	Description
<b>Messenger</b>	Humans agree to collude and use computers to execute their will.
<b>Hub and Spoke</b>	The use of a single pricing algorithm to determine the market price charged by numerous users.
<b>Predictable Agent</b>	A world where pricing algorithms act as predictable agents and continually monitor and adjust to each other's prices and market data.
<b>Digital Eye</b>	Computers, in learning by doing, determine independently the means to optimize profit.

# Conscious parallelism on steroids

- The effects of “price reduction software”
- Hub and spoke
- Predictable agent

# Algos – when things go wrong!



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# Some Amazon pricing tools



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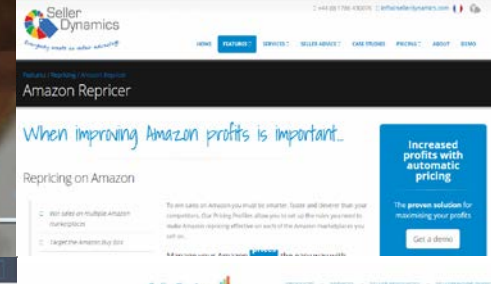


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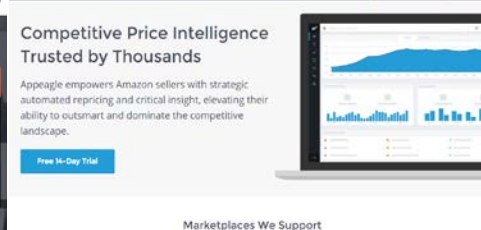
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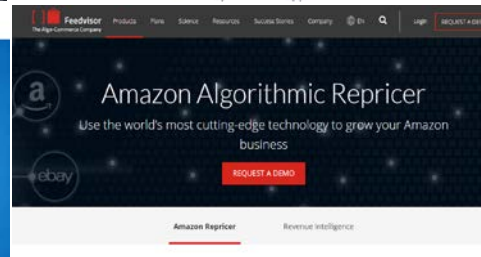
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# Not just price

## THE BUY BOX CHEAT SHEET



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Metric	Impact On Buy Box	Definition	Best Way To Win Buy Box	For Buy Box Consideration	Time Period That Impacts Metric
Fulfillment Method	Very High	How the seller ships the item	FBA	FBA/ FBM	Current
Landed Price	High	The total price plus shipping	Lower is better		Current
Seller Rating	High	The overall score of customer experience	98% +	Not less than 70%	Last 365 days
Shipping Time	High	Time it takes to ship the item	Up to 2 days	Not more than 14 days	Current
Order Defect Rate	Medium	Negative Feedback Rate + A-to-Z Claim Rate + Chargeback Rate	0%	Not more than 1%	Last 90 days
Feedback Score	Medium	Total of all feedback the seller has received	Higher is better (%)		Last 365 days
On-Time delivery	Medium	Orders that were delivered on time	100%	Not less than 97%	Last 90 days
Late Shipment Rate	Medium	Deliveries that were shipped more than three days after receiving the order	0%	4%	90 days
Tracked Delivery Rate	Medium	Deliveries sent with full tracking information	100%	Not less than 98%	Last 90 days
Customer Response Time	Medium	How long the seller takes to reply to the customer	Up to 12 hours	Not more than 24 hours	Last 90 days
Feedback Count	Low	The number of customers that have given feedback	Higher is better (%)		Constant
Inventory Depth	Low	How often the seller runs out of stock	Lower is better (%)		Last 90 days
Cancelation Rate	Low	How often sellers cancel an order	0%	Not more than 2.5%	Last 90 days
Refund Rate	Low	How often customers ask for a refund	Lower is better (%)		Last 90 days

Qty: 1

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Add to Cart

Turn on 1-Click ordering for this browser

Ship to:

Select a shipping address:

Add to List



# Effect of algorithm-driven pricing on a platform

- Characteristics parallel to a Vickery auction
- There consumer welfare loss is the difference between the private value of the lowest price merchant and the public value of the second lowest price merchant
- However, this loss is comparable to the outcome with an efficient market, when there are a reasonable number of merchants

# Resale price maintenance

- Asus, Denon & Marantz, Philips and Pioneer fined €111 million (after discounts for cooperation) for RPM on 24 July 2018
- Their retailers were using algorithmic pricing to maximise profit but selling under RRP
- The manufacturers used the same eBay and Amazon Market Place application programming interfaces to discover the defection

# Blockchain distraction

- On-ramps and off-ramps
- The certainty that the price required of cartel members is being used by those cartel members is high when all members of the cartel have audit visibility
- Facilitates “hub and spoke”
- Seemingly auditable by the competition regulator

# Conclusions

- Perhaps just another reputational risk issue
- Fight fire with fire – algorithms in competition RegTech
- Exclusionary conduct can be algorithmically facilitated
- Australian approach to coordinated conduct – concerted practices that require a meeting of the minds but no commitment
- Conspiracy or coincidence?

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