



Competition Regulation in a Big Data World: an Economic Perspective

How the economic approach handles competition issues in the data world ?

27 September 2019

Defining Big Data: the 4 Vs



Volume

Industries are inundated with voluminous data of all types.

- ▶ A plane generates several Terabytes per flight
- ▶ Social networks:
 - ▶ Facebook: 4 million posts every minute
 - ▶ Instagram: 100 million likes per hour
 - ▶ Tweeter: 21 million tweets per hour
 - ▶ YouTube: 300 hours new video content uploaded every minute
- ▶ Power meters, smart homes, connected cars, etc...

Defining Big Data: the 4 Vs



Volume



Velocity

Data is being collected at a very fast pace.

Sometimes a minute's delay causes a discrepancy in the analyzed output

- ▶ Fraud detection: millions of trade transactions per day must be scanned for fraud prevention and exposure.
- ▶ Traffic information in a road-map app
- ▶ Competition analysis for instance by noticing the number of downloads of an application from an app-store, and cross-reference it with online usage or search preferences

Defining Big Data: the 4 Vs



Volume

Data can be of any source and type, regardless of its structured or unstructured nature.

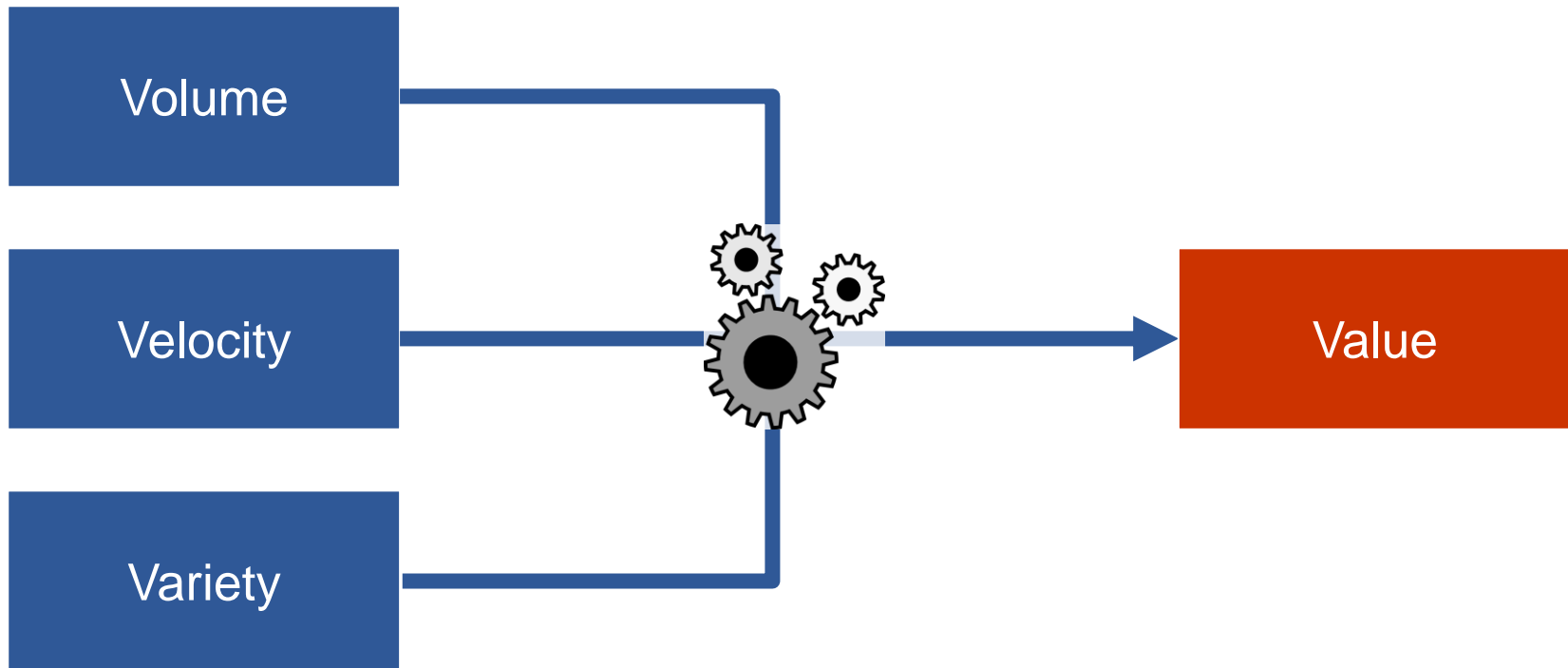
- ▶ From Smartphones, Social networks, IoT devices, industry sensors, cameras, etc.
- ▶ Text, audio and video data, sensor data, log files, etc.

Velocity

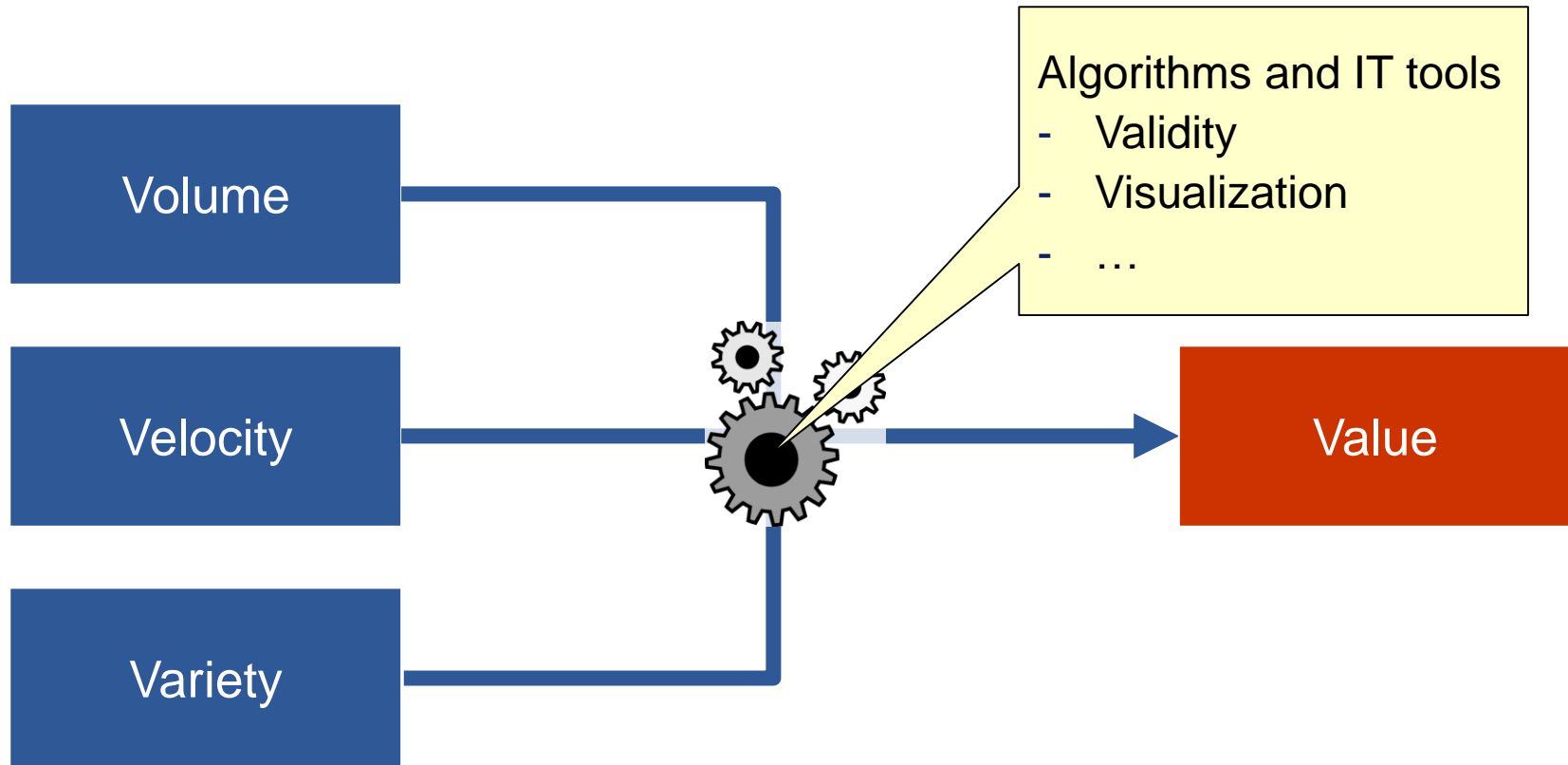
Variety

Companies collect and process “personal data” providing not only customer’s address, age and gender, but also household composition, dietary habits, purchasing history, frequency and duration of visits to online and physical stores...

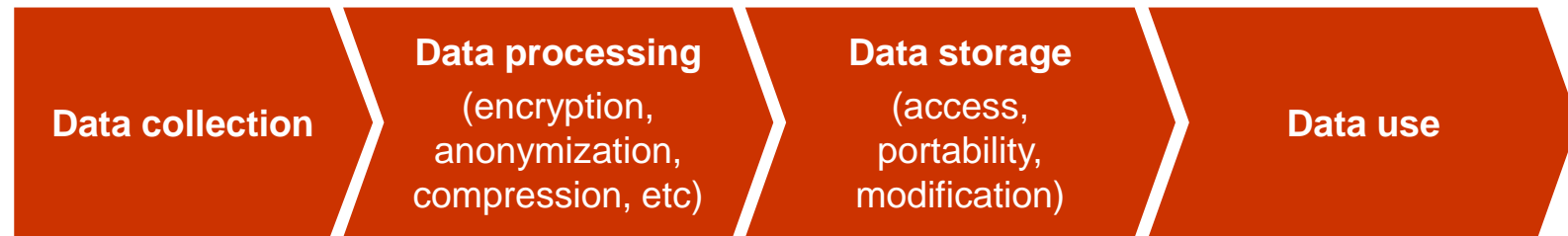
Defining Big Data: the 4 Vs



Defining Big Data: the 4 Vs



Defining Big Data: the Value Chain



Big data can finally be defined as the « *development of new methods capable of extracting valuable information from extremely large accumulations of (often unstructured data)* »

(Autorité de la Concurrence and the Bundeskartellamt, 2016)

The benefits of Dig Data: Data Driven Innovation



Innovation

- Improve the **quality** of products and develop entirely new services, by better understanding and targeting individual consumer needs (ex: search engines)

Efficiency

- Improve the **efficiency** of production processes, forecast market trends, improve decision-making and enhance consumer segmentation

Social Welfare

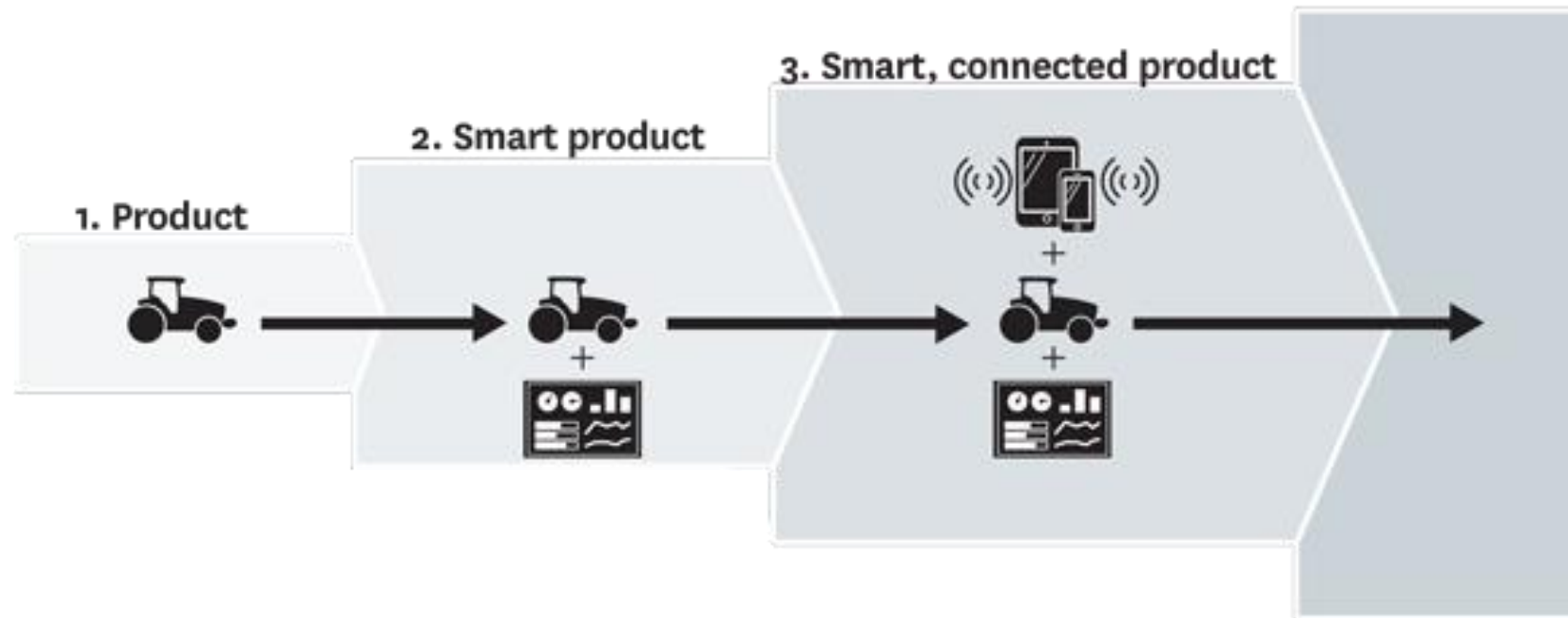
- Reduced congestion and pollution, reduced energy consumption, better disease diagnosis
- Monetization of Data Subsidizes Free Products for Consumers

Case study



JOHN DEERE

The farming equipment manufacturer John Deere now connects not only farm machinery but irrigation systems, soil and nutrient sources with information on weather, crop prices, and commodity futures **to optimize overall farm performance.**

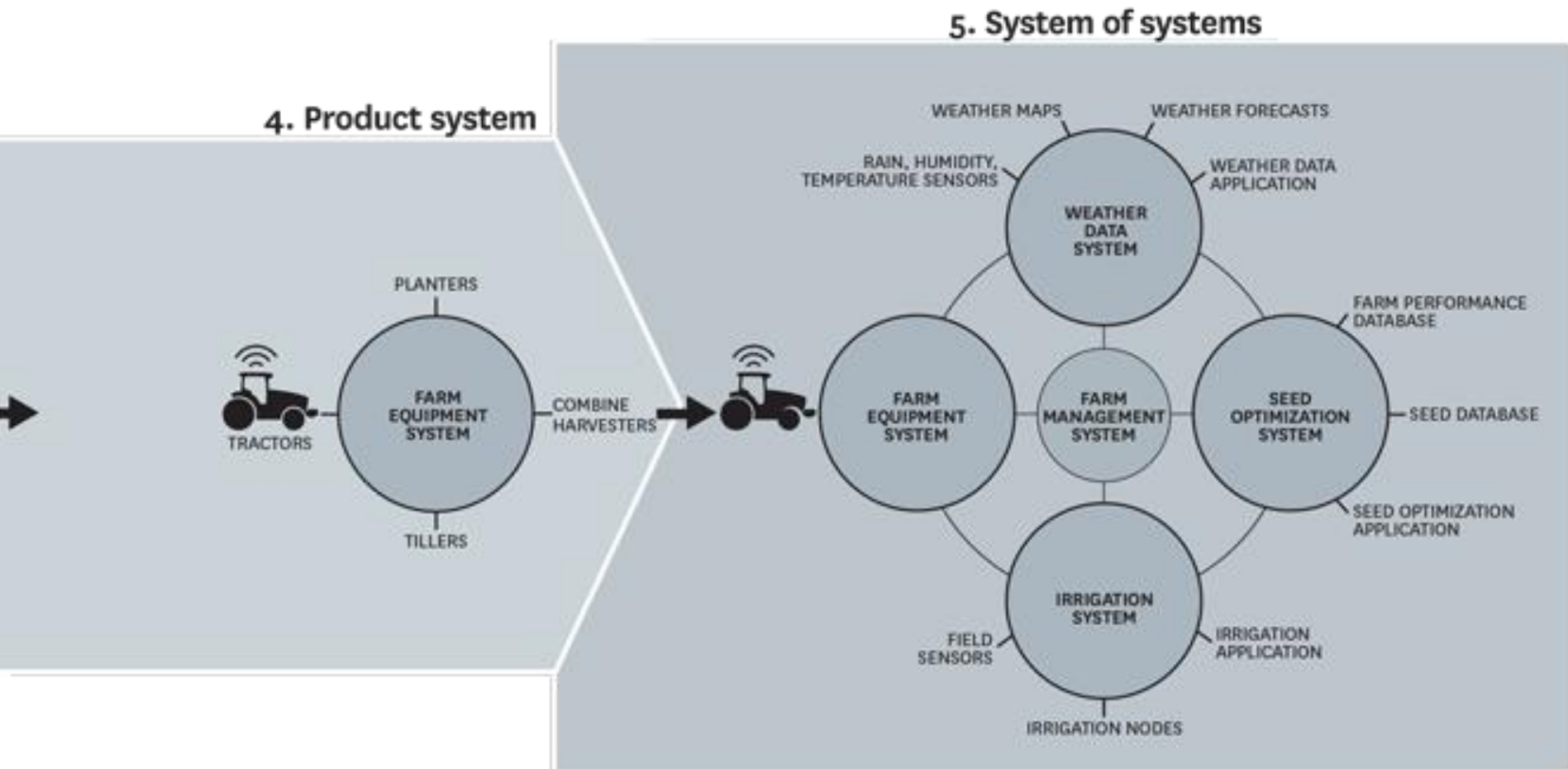


M. Porter, Hedelmann, Harvard Business Review, 2014

Case study




JOHN DEERE



M. Porter, Hedelmann, Harvard Business Review, 2014

Understanding competition issues



Data (and the related analytical tools) **is a key asset** in a competitive environment, and companies are undertaking strategies to obtain and sustain a “**data advantage**”.

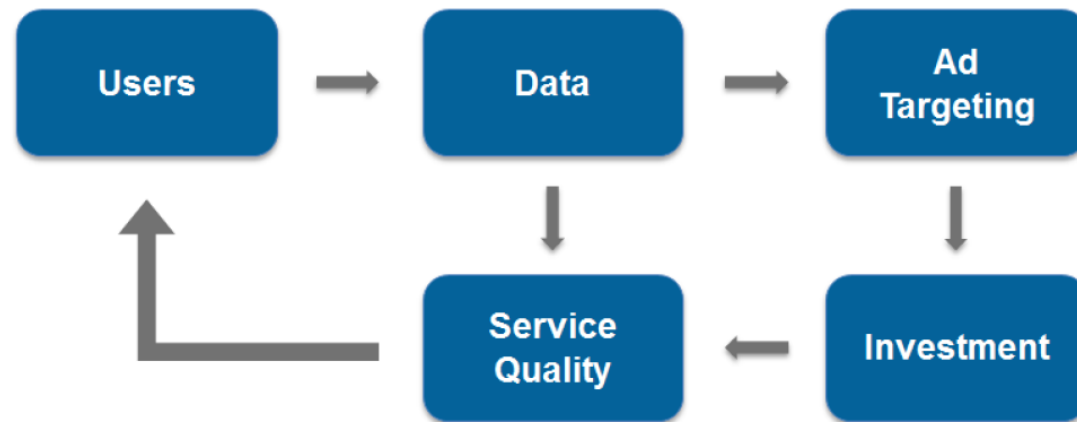
But one could argue that it has always been this way!

So, what's new with big data compared to traditional business?

Understanding competition issues

Positive externalities and network effect

- The value of data increases with its volume and variety: each individual gains value by adhering to the system and in return, his or her membership creates value for the entire system.



Big data: bringing competition policy to the digital era (OECD, 2016)

Understanding competition issues

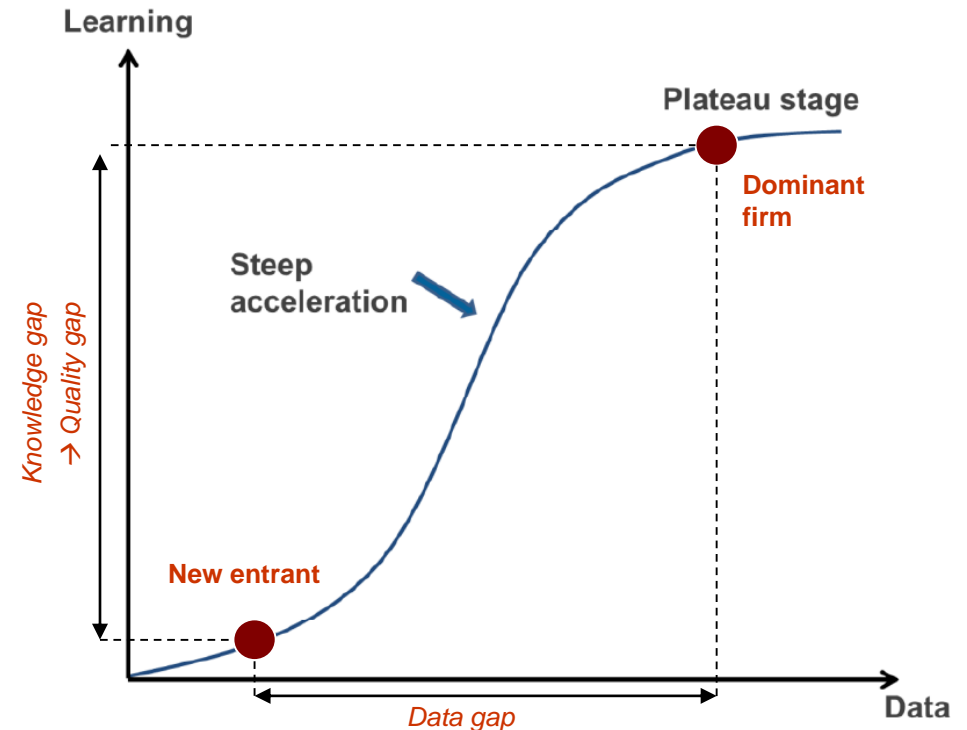
Snowball effect and winner takes all phenomenon

- ▶ When a critical threshold of members is reached, the externality generates a cumulative effect: it is more interesting for any member to rally the largest network that generates more potential individual value, which sees its attractiveness increase because of the number of network's members/membership.
- ▶ Once the platform has reached a critical size, it absorbs the entire growth of the market (snowball effect) and supplants its competitors (winner take all).
 - ▶ Markets are therefore concentrated and dominant players re in a position to redistribute the value created for his benefit (search engines, short-term rentals, social networks, VTC, video streaming, etc.).
 - ▶ Competition for the market and not on the market

Understanding competition issues

“Unlimited” knowledge and high upfront costs increase such effects

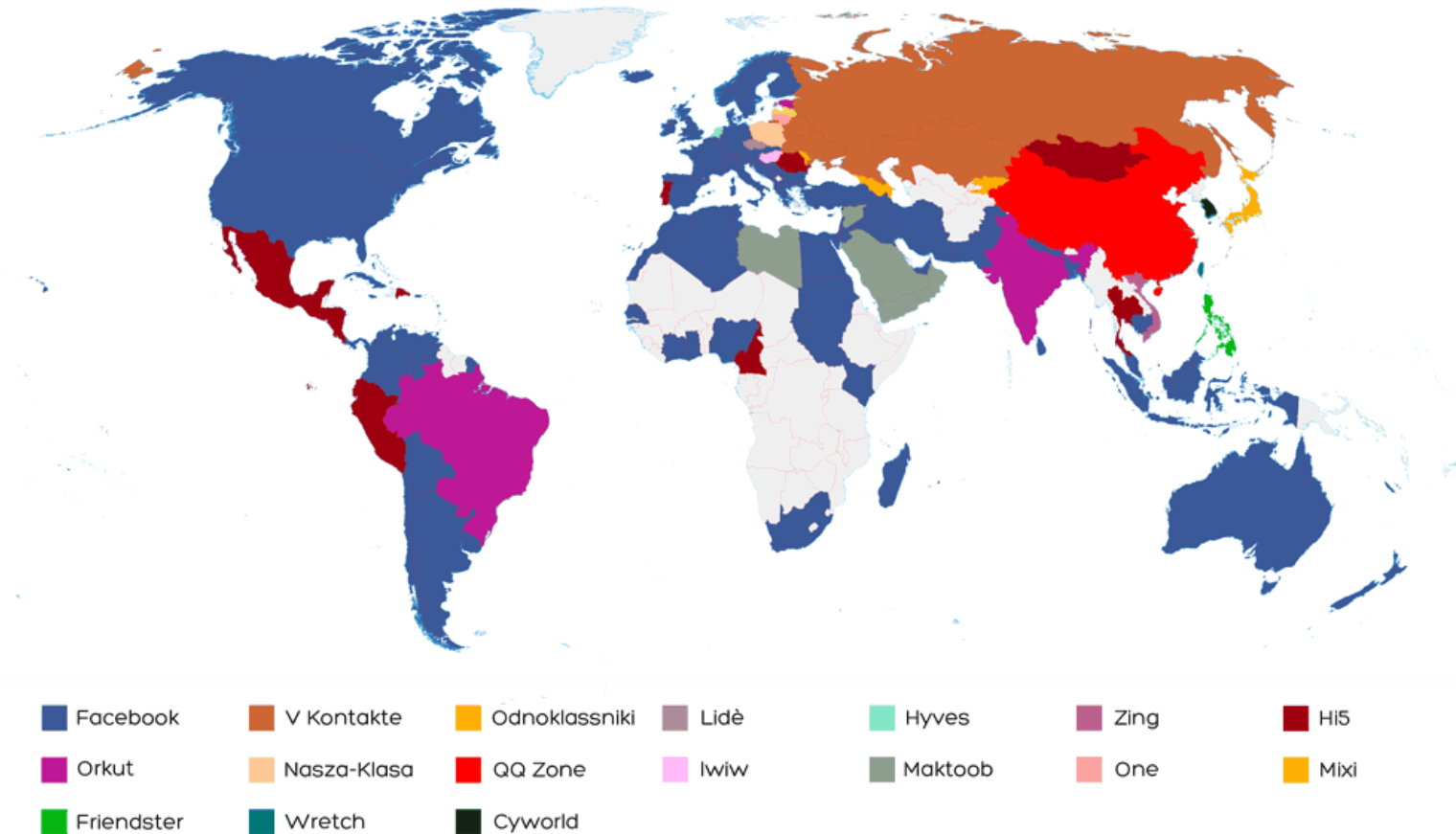
- ▶ the lack of physical bounds to the quantity and variety of data that can be collected in a digital world, and the unlimited knowledge that can be obtained has increased the steep acceleration phase of the Big Data incumbent and the gap with small players
- ▶ the cost of treating and using information involves high up-front sunk costs (hardware and software) and close-to-zero marginal costs.



OECD, TERA Consultants

“winner take all” effects: monopolisation

Social network with highest market share per country, June 2009



<https://vincos.it/world-map-of-social-networks/>

“winner take all” effects: monopolisation

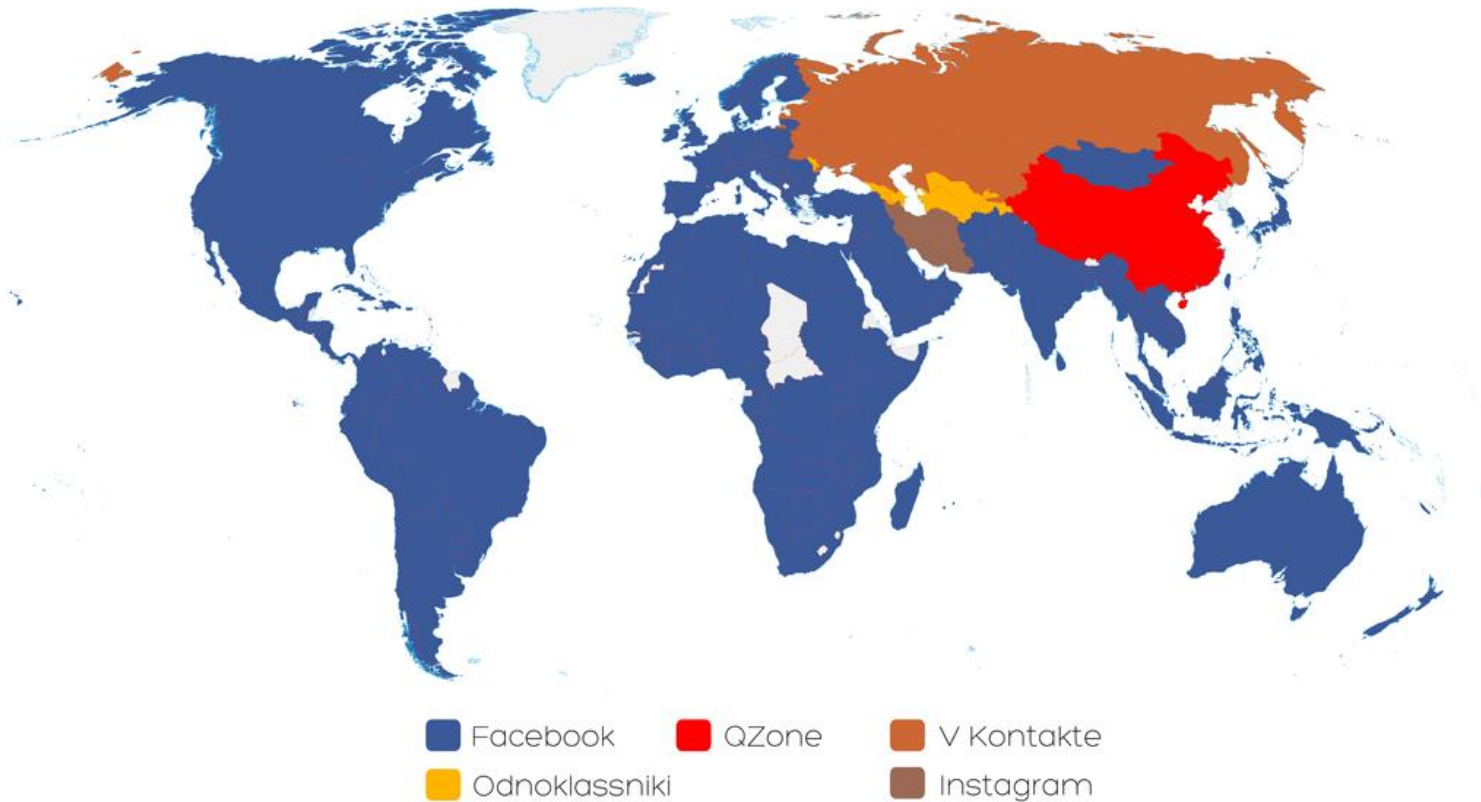
Social network with highest market share per country, Dec 2014



<https://vincos.it/world-map-of-social-networks/>

“winner take all” effects: monopolisation

Social network with highest market share per country, June 2019



<https://vincos.it/world-map-of-social-networks/>

“winner take all” effects: monopolisation... and conglomeration



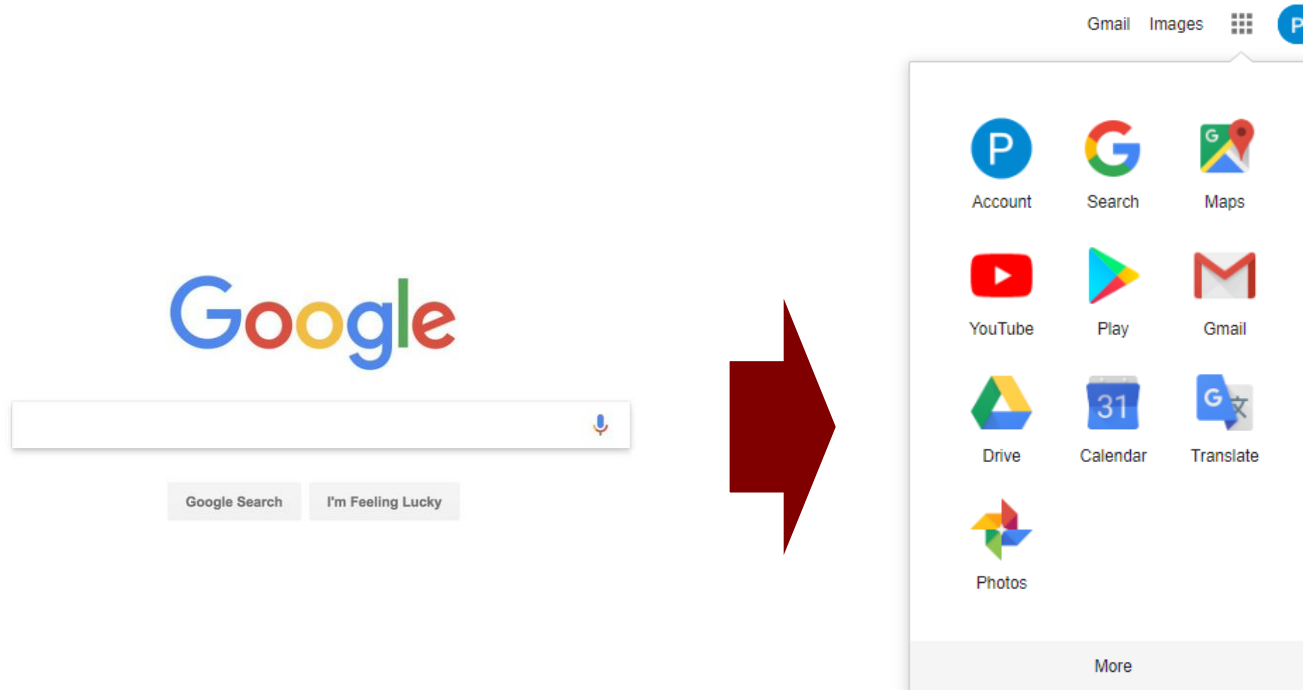
Google



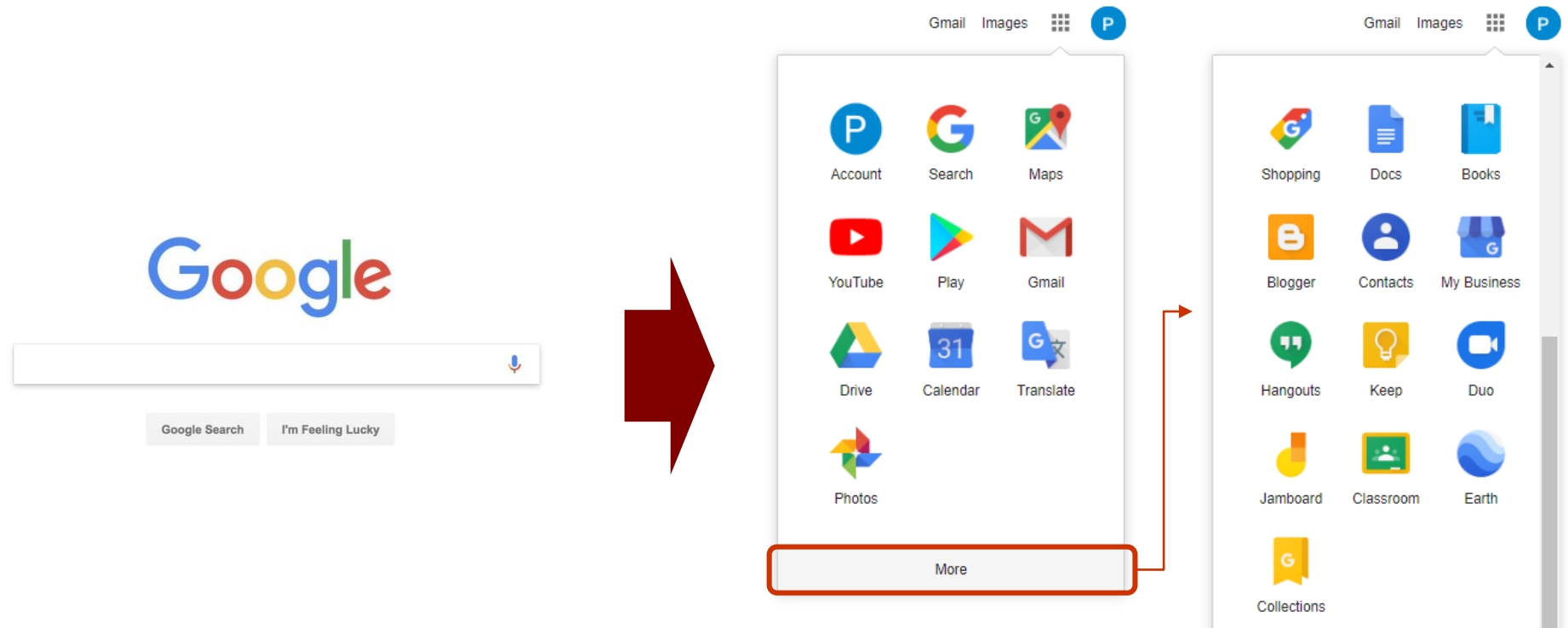
Google Search

I'm Feeling Lucky

“winner take all” effects: monopolisation... and conglomeration

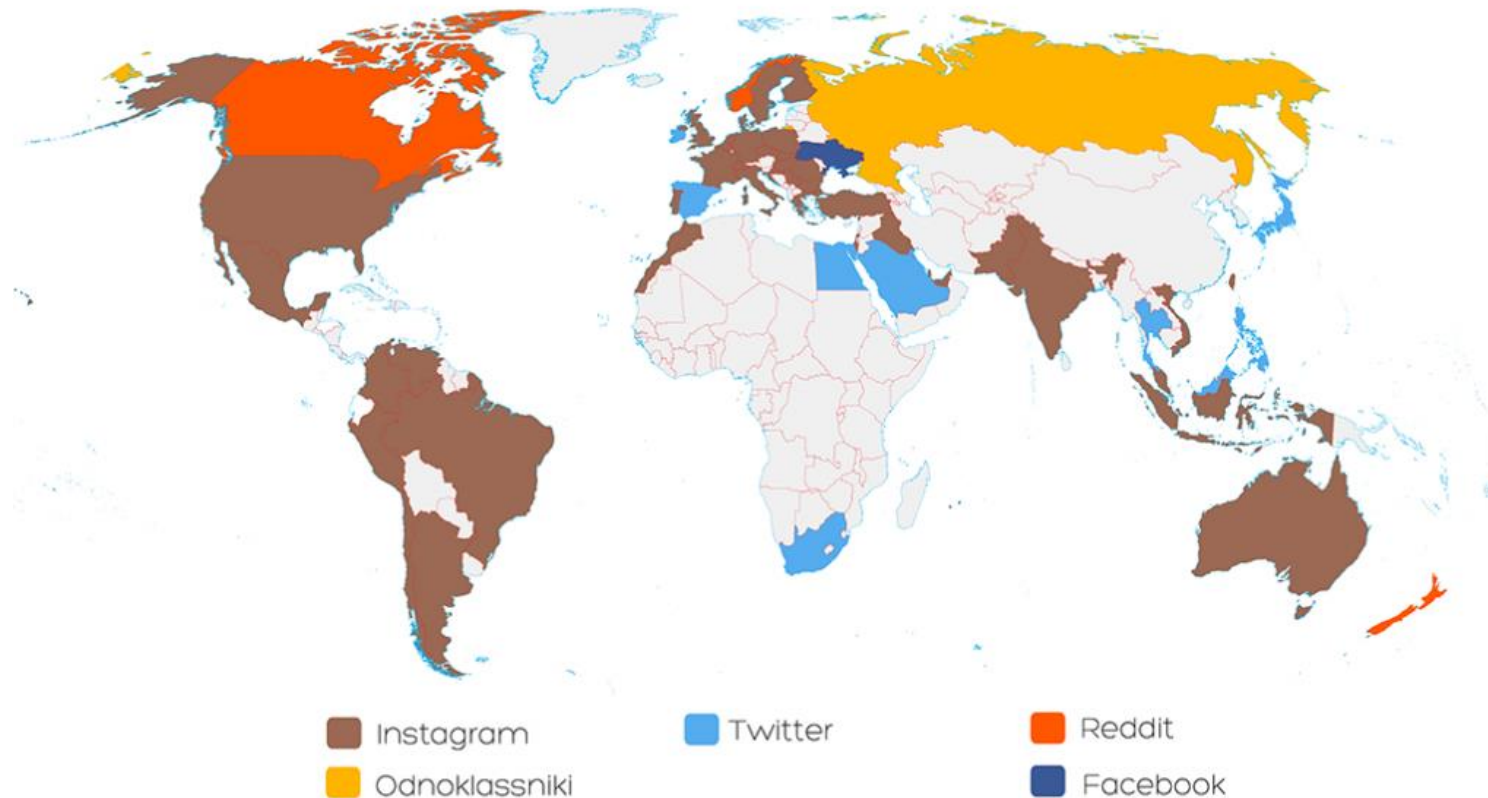


“winner take all” effects: monopolisation... and conglomeration



“winner take all” effects: monopolisation... and conglomeration

Social network with second highest market share per country, June 2019



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Mergers and acquisitions reveal the value of data

Acquisition of data is a key issue in the “cold start” phase where individual data is of little value.

- Explains recent acquisition strategies

Purchased company	Date	Buyer	Purchase price (USD)
Instagram	Apr 2012	Facebook	1 B
Youtube	Nov 2006	Google	1.65 B
Minecraft	Sep 2014	Microsoft	2.5 B
WhatsApp	Oct 2014	Facebook	21.6 B
LinkedIn	Jun 2016	Microsoft	26.2 B
Waze	Oct 2013	Google	1.5 B

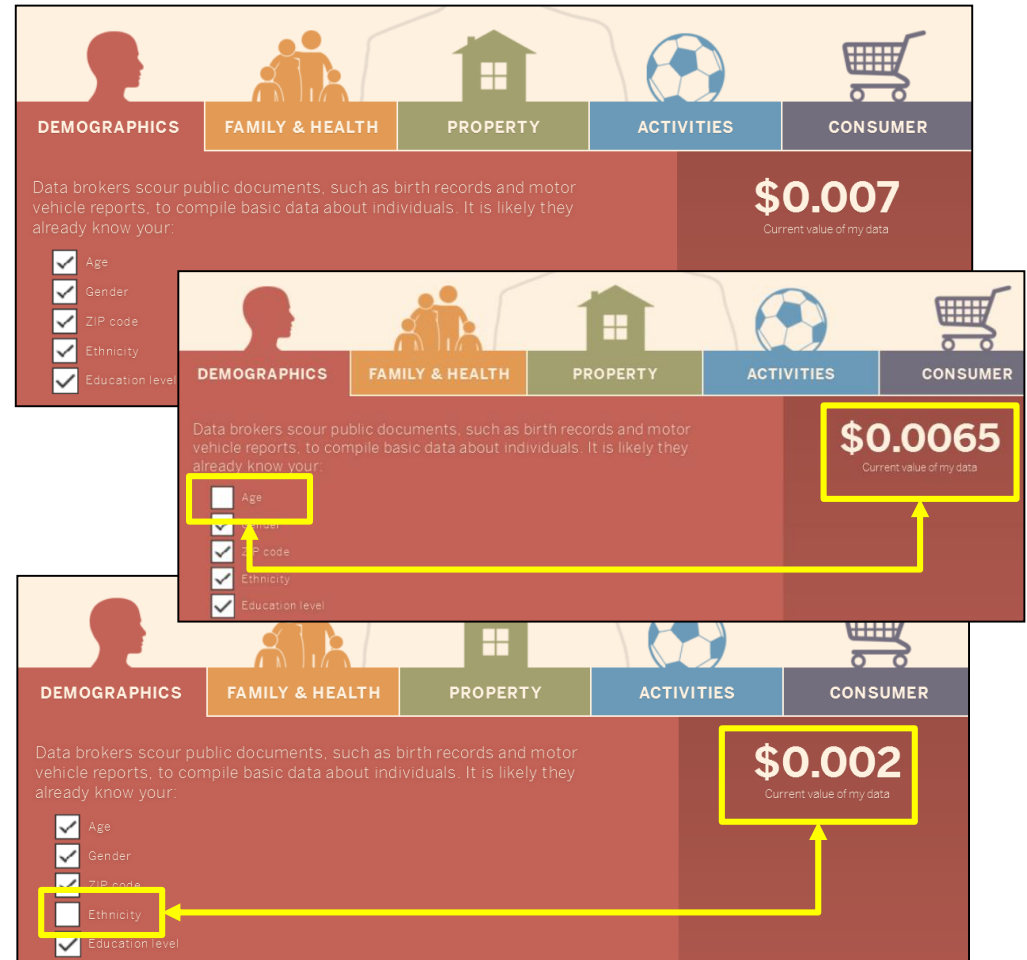
OECD, TERA Consultants

An illustration of the value of data


More than 270 data brokers in the world set a worldwide market for individual data

- ▶ Generic data on an individual : **0.007ct**
- ▶ Millionaire : **0.123ct**
- ▶ Allergic individual : **0.577ct**
- ▶ Asthmatic, diabetic : **1.037ct**

A person's ethnic information has ten times more value than their age



Competition issues



Accumulating data is not, in itself, problematic under competition law. But owning a significant data set due to a dominant position can lead to a dominant position in another market.

- ▶ Therefore dominant undertakings should be subject to added scrutiny and rules with regards to their datasets

However, Big Data can perpetuate an unfair competitive advantage and consequently distort competition and harm consumers:

- ▶ ability to erect barriers to entry and maintain dominance by limiting competitors' access to data,
- ▶ preventing others from accessing the data, and opposing data-portability policies that threaten data-related competitive advantages
- ▶ Exclusive licensing or exclusive access
- ▶ Price discrimination based on data obtained or provided

Competition issues - AI and price coordination



What happens when prices are set by algorithms?

Liability issue?

Currently no legal basis to deal with such situation.

Competition issues - AI and price coordination



The Making of a Fly: The Genetics of Animal Design (Paperback) by Peter A. Lawrence

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New 1-2 of 2 offers

Price + Shipping	Condition	Seller Information	Buying Options
\$1,730,045.91 + \$3.99 shipping	New	Seller: profnath Seller Rating: ★★★★★ 93% positive over the past 12 months. (8,193 total ratings) In Stock. Ships from NJ, United States. Domestic shipping rates and return policy . Brand new, Perfect condition, Satisfaction Guaranteed.	Add to Cart or Sign in to turn on 1-Click ordering.
\$2,198,177.95 + \$3.99 shipping	New	Seller: bordeebbook Seller Rating: ★★★★★ 93% positive over the past 12 months. (125,891 total ratings) In Stock. Ships from United States. Domestic shipping rates and return policy . New item in excellent condition. Not used. May be a publisher overstock or have slight shelf wear. Satisfaction guaranteed!	Add to Cart or Sign in to turn on 1-Click ordering.


Current competition analysis tools are not always appropriate



Market Definition: Should data collection form its own product market?

- ▶ Such a market would be difficult to define: traditional substitution analysis is not applicable
- ▶ **Data itself is not a relevant product in the sale of online advertising:** advertising services are the relevant product.
- ▶ Under current antitrust law, no relevant market can be defined for the collection of consumer data.
 - ▶ In reviewing the Facebook/Whatsapp acquisition, the European Commission overtly declined to define a market for Big Data since neither party was active in the provision of data to third parties.

Current competition analysis tools are not always appropriate



Dominance assessment: how to assess market power of multisided platforms?

- ▶ Companies apply zero-price services to consumers in exchange for data: no revenues
- ▶ Non-price dimensions of competition:
 - ▶ reduced quality, imposition of large amounts of advertising, collection and analyse or sell of excessive data from consumers.
 - ▶ Data used as a barrier to entry.
 - ▶ High returns to scale associated with Big Data, as well as direct and indirect network effects
 - ▶ Multi homing ability – but strong consumer inertia!


Merger controls tools are obsolete



Merger control aims at assessing the effects of a merger on competition, but the current tools might not be appropriate

- ▶ Google/DoubleClick and Facebook/WhatsApp: no competitive advantage
- ▶ Two main issues: notification thresholds and privacy concerns

Merger control tools are obsolete

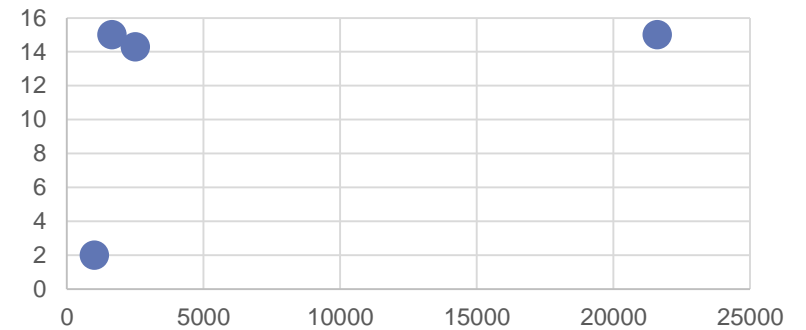


Purchased company	Purchase price (USD)	Revenue (USD)	User base
Instagram	1 B	2 M	30 M
Youtube	1.65 B	15 M	50 M
Minecraft	2.5 B	14.3 M	100 M
WhatsApp	21.6 B	15 M	430 M
LinkedIn	26.2 B	3 B	433 M
Waze	1.5 B	-	50 M

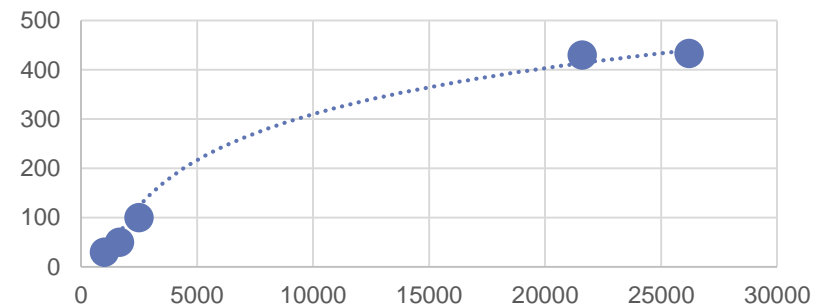
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Purchase price according to company revenue



Purchase price according to company customer base



Merger controls tools are obsolete

Notification thresholds in Big Data mergers


- ▶ In 2017, Germany and Austria instituted additional transaction-value thresholds in the notification requirements (400M€ and 200M€)
- ▶ Provides a forward-looking analysis of the company's potential and, therefore its competitive relevance.

Merger controls tools are obsolete

Is Privacy a competition law matter?

- ▶ If privacy is a key component of a product's value it may become a competition concern.
- ▶ Close link between the dominance of the company, its data collection processes and competition on the relevant markets, which could justify the consideration of privacy policies and regulations in competition proceedings.

Frameworks are starting to evolve



Privacy is starting to be taken into account as a product characteristic and new thresholds considered in merger controls

Lots of cases currently under investigation which deal with “fair data use”:

- ▶ AMAZON :

- ▶ Ongoing investigations, including whether Amazon is unfairly using data from third-party sellers who use its platform to improve its own offerings.

- ▶ APPLE :

- ▶ Apple is under investigation for unfairly using its app store to harm competition

Frameworks are starting to evolve



► GOOGLE :

- EC levied a record \$2.7 billion fine on Google for unfairly favoring its own online shopping-comparison service over those of competitors. Last year, the E.U. ordered Google to pay an additional \$5.1 billion for abusing its power in the mobile phone market to cement the dominance of its software on the Android platform. This year, antitrust authorities fined Google another \$1.7 billion, this time for abusing its dominance in online advertising

► FACEBOOK:

- EC fined \$122 million for combining the personal data of Facebook and WhatsApp users, after the company had explicitly said that it would not do so

Adapting competition regulation to the age of big data

European Commission approach:

- ▶ Europe increasingly considers control of massive data likely plays a critical role in attaining dominance in digital markets
- ▶ Massive data harvesting must be considered a part of competition and regulatory analysis of market forces

US Approach

- ▶ DoJ and FTC are now probing the tech giants
- ▶ Recent announcement of possible dismantlement investigations

Adapting competition regulation to the age of big data

Data-based regulation : Big Data for regulation

- ▶ Crowdsourced big data or additional data collection obligations may be introduced as a tool to address market dysfunctions through transparency

Unbundling Big data and interoperability obligations

- ▶ Network effect barriers obtained through big data can be compensated by forcing dominant actors to open their datasets. (API based regulation)
- ▶ Sometimes companies already unbundle their services on a voluntary basis (Amazon)

Conclusion: a challenging path towards platforms regulation

The implementation of a stronger regulation raises a lot of pending questions

- ▶ Who should regulate: telecom NRAs, competition authorities, new entities?
- ▶ This question is particularly relevant as regards net neutrality, where the split of responsibilities between NRAs and independent commissions managing data privacy is not clear (in the EU, RGDP is managed by National data protection authorities, not by NRAs)
- ▶ Transnational companies: the CJEU just recalled to the French NDPA (CNIL) that the Right to be forgotten does not apply outside the EU

Solution might com from dismantlement?

- ▶ Some democrat candidates are calling for a dismantlement of GAFAM, based on the 1980 Sherman Act against trusts
- ▶ In the EU, the ECN+ directive just came into force and should allow concerted actions from European member states against trusts