IPS
Class
PLATFORM BUSINESS III

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Platform businesses such as Google, Facebook, Amazon, have become VERY LARGE FIRMS (in terms of revenue, market capitalisation, but they have much fewer employees than big firms of the second and third industrial revolution)

➔ **Are they monopolies that impede entry of new firms (SMEs) or predate smaller firms???**

We will see here different aspects:

1. Innovation and monopoly: how GAFAM innovate (ensure market power) by acquiring smaller innovative firms
2. Are big platforms too big? The Economics of platforms
3. The power of big data through algorithm: large platforms have large amounts of big data and can use them to preserve market power through algorithms; Antitrust and regulatory issues

Summary (previous class, sections 1 and 2)

Competition dynamics:

It's relatively easy to create a platform business

But successful SMEs are often acquired by large firms

Successful platforms become very large and gain large market power

Example Facebook = 2.5 billion users per month (2019) (Statista.com)

= revenue of $ 70,7 bn (2019)

Market value = $ 426.8 bn (2019)

However, the «winner-take-all» effect implies that successful digital platforms really become big, and get enormous market power

➔ The large platform can use this large market power to limit competition

3. Antitrust and regulatory issues; the power of BIG DATA and ALGORITHMS

Press release | 20 March 2019 | Brussels

Antitrust: Commission fines Google €1.49 billion for abusive practices in online advertising

The European Commission has fined Google €1.49 billion for breaching EU antitrust rules. Google has abused its market dominance by imposing a number of restrictive clauses in contracts with third-party websites which prevented Google's rivals from placing their search adverts on these websites.

2019

Facebook fined $5 billion by FTC, must update and adopt new privacy, security measures

Mike Snider and Edward C. Baig | USA TODAY
Updated 1:09 AM EST Dec 16, 2019

Facebook must pay a record-breaking $5 billion fine as part of a settlement with the Federal Trade Commission, by far the largest penalty ever imposed on a company for violating consumers' privacy rights.

The FTC is looking into "hundreds" of potential anticompetitive acquisitions made by Apple, Facebook, Microsoft, and Google-parent Alphabet as it ramps up antitrust inquiries

Tyler Sonnemaker Feb 11, 2020, 6:41 PM

The Federal Trade Commission asked Amazon, Apple, Facebook, Microsoft, and Google's parent company for information on past acquisitions of small startups, it said in a press release Tuesday.

The FTC is looking into whether the companies gained an unfair edge by buying up "nascent competitors" in deals small enough that companies weren't required to report them.

Chairman Joe Simons said there are potentially "hundreds" of deals that flew under the radar, and said the fact-finding mission could lead the FTC to unwind past deals.

The inquiry comes amid numerous other antitrust investigations into the tech industry in both the US and Europe.

Visit Business Insider's homepage for more stories.

In Europe, GAFAM had to pay about € 20 billion to the European Commission from 2016

Examples:

Apple had to repay tax agreements with Ireland (creating unfair competition in the Internal Market)

Google: 2019 pays about € 1.5 bn for abuse of dominant position in the AdSense service with which it was convinced of having limited the possibility for competitors to advertise

Google:

2018 pays € 4.3 bn for abuse of dominant position in the operating systems for mobile phones (Google imposed Android)

2017: € 2.42 bn due to handling of the results of its search engine at the expense of competitors, in the comparative shopping service, Google Shopping.

There are competition issues

In fact, there are competition issues, particularly regarding e-commerce:

E-commerce (transaction on the internet) has affected both demand and supply fundamentals on markets

Hence firm strategies

Raising antitrust issues

E-commerce affects all sectors

In the EU, e-commerce has grown at an average annual growth rate of 22%

Concerns what products?

- Physical goods such as clothing and footwear, cosmetics and healthcare products, consumer electronics
- Services for offline consumption such as transport (train, planes, etc.), accommodation (booking of hotel rooms) and tourist services (booking visits, etc.)
- Digital content services such as films, e-book, music and video games (entire transaction + delivery arise online)

E-commerce: positive effects on the demand side

- Search costs reduce for the consumer: information of product characteristics and prices charged by different sellers is easily available online
- Geographical barriers are lower: access to sellers anywhere, even abroad

Empirical studies however show that consumers prefer buying locally, even online

E-commerce: effects on the supply side

- Small retailers can more easily reach wider market
- Delivery costs are high, and managing the logistics (transport of the goods to the consumers' home) is a key issue
- The Internet has a strong effect on prices: price competition increases a lot
- But this can be at the expense of quality (non-price competition)

Manufacturers focus on non-price competition to gain competitive edge: quality, brand image and novelty of the product

Retailers focus on prices

Interplay between online and offline channels

This is an important aspect to consider.

Consumers: often free-ride, e.g. go to the shop to try shoes, but then buy them online; they also compare prices and products online before going to the physical shop, with better information.

Manufacturers' strategies to maintain prices and quality

Given higher price competition and difficulty to ensure product quality, manufacturers can:

- Increase their presence in the retail market (vertical integration)
- Increase the use of selective distribution systems (prohibition of non authorized retailers, strict control of the retailers, etc.)
- Use of vertical restraints on retailers (platform bans, pricing restrictions, etc.)

Example: Coty Germany GmbH

Coty (supplier of luxury cosmetics in Germany) prohibited its authorized distributor, Parfümerie Akzente GmbH, to sell its good on Amazon.de

The case reached the European Court of Justice, which ruled in 2017 that the ban was lawful, because it preserved the brand image and quality and thus contributed to competition

E-books

When Apple launched its iBookstore, it negotiated an agreement with a number of publishers that committed not to sell their ebooks at other retailers (such as Amazon) at a lower price than Apple.

This type of clause is called Across-Platforms Parity Agreement (APPA)

Apple and the five publishers were convinced of infringing competition law both in the EU and the USA.

Online travel agents

The dominant platforms in hotel booking are Booking.com and Expedia.

Smaller platforms complained to the Competition Authorities that they could not implement the same discounts on rooms booked than the two dominant platforms.

In fact, Booking.com and Expedia were found to have made an agreement with Intercontinental Hotel Group (owner of many hotels around the world, such as Crown Plaza and Holiday Inn) aimed at limiting other agents' ability to discount hotel accommodations.

Today the connection technologies allow to accumulate huge amounts of data.

Each day about 3,3 billion search requests are made on 30,000 billion pages on Google;

on Facebook, about 350 million pictures and 4,5 billion likes are posted;

3 billion internet users exchange about 144 billion emails each day.

The main challenge of big data analytics is to make sense of this huge amount of raw data.

BIG DATA ANALYTICS

= algorithms which provide computers with mathematical instructions to order, process, aggregate and represent the information coming from big data.

It would be important to diffuse a statistical culture in the population to avoid people being cheated by ads and messages that propose products or services.

- Algorithms influence our choices on platforms: they suggest products, that we should like. Searches on Google are more and more personalised in order to meet our expectations and anticipate our needs before we are even aware of them.
- In fact, algorithms propose products or services on the basis of our past choices and of the choices made by persons with similar characteristics than ours.

Many economic activities that were performed by humans are now automatic, performed by algorithms:

- Automatic credit assessment in banking
- Amazon estimates that about 35% of its sales are from cross-selling activities such as recommending items
- Prices for plane flights and hotels constantly change in response to supply and demand evolution
- Physical goods also subject to automatic pricing: Amazon and Walmart altered prices by 16% and 13% respectively after the Black Friday in 2015.

Danger of algorithms: they may perpetuate unfair and harmful biases:

Examples: search google for images of engineers ➔ no photo of black woman appears

AI systems predicting where crime is likely to occur tend to be biased towards low-income communities (social impact is making disadvantaged areas even worse)

AI systems granting loans tend to favour rich people, although some poorer ones may be able to repay

➔"People worry that computers will get too smart and take over the world, but the real problem is that they're too stupid and they've already taken over the world."

Pedro Domingos (computer scientist) in book "The Master Algorithm", 2015

So the social impact of AI systems has to be better assessed (Crawford and Calo, "There is a blind spot in AI research", Nature, 2016).

Other example: UBER

Uber has a system of surge pricing, namely prices automatically rise when demand suddenly gets higher

Problem: 2014, terrorist attack in a café in Australia → people immediately want to escape from the area, many of which trying to use Uber → demand suddenly rises → prices substantially rise: people got very angry that in such dramatic circumstances Uber behaved in this way!

November 2015, terrorist attack in Paris: Uber cancelled surge pricing and alerted all users in Paris of the emergency

Conclusion:

It is wise to have human wisdom and algorithms work together!!!

→ Machines will never get as smart as humans, because humans “know more than they can tell” (they have tacit knowledge whereas machine only have codified knowledge – see class on innovation)

D. Autor:

“The scope for this kind of substitution (of computers for people) is bounded because there are many tasks that people understand tacitly and accomplish effortlessly but for which neither computer programmers nor anyone else can enunciate the explicit ‘rules’ or procedures”

WEB SITES, PLATFORMS, MEASURE AUDIENCE IN 4 MAIN WAYS:

- **Popularity**: measured counting the number of clics;
- **Prestige**: measured by the links that users exchange;
- **Reputation**: there are counters on the web that provide indications of reputation through the opinions of users (for instance: grading to hotels on hotel booking) or the number of “likes” (Facebook);

- Predictive systems: statistical learning methods aimed at finding out from the different sites visited by a person whether its behaviour is similar to other users and forecast future behaviour.

Cookies:

1994: Lou Montulli, engineer at Netscape, invents cookies = computer file inserted in the browser in order to recall previous navigations made by the user.

They allow to recognise the user each time he/she connects to facilitate navigation, but they also allow to collect a host of information on the individual.

There are firms like Axciom, BlueKai, eXelate, Rapleaf, etc., (unknown), that compete on the market for advertising on the web. They have imposed the "third party cookie" technique, which induces that each time a user goes on a site, the ad will appear on the sites that the user will subsequently visit.

This market should be **regulated**: the use, when giving consent to cookies, in fact also give consent to the use of his data, his privacy, but users are not always aware of it.

A platform can find out about many aspect of an individual (from information coming from his smartphone or computer):

Whether he/she regularly listens to some particular musics

How long the user took to read the ebook

Where has he/she been (with the GPS)

What did he buy with his credit card

Cultural consumption

Political expression

… **All these data can be used to analyse the individual**

TWO PROBLEMS:

- Recommendations are based on past choices but do not leave space to **new experiences**;

- Recommendations are also based on the behaviour of similar individuals, so that they lead to push everybody to a **common average behaviour**.

=> Computers and robots can substitute humans in mechanical, functional and statistical activities, NOT in activities requiring creativity and mental openess!!!

Platform businesses have a big power.

They can even favour some social movements or opinions… see the example of Twitter and Occupy Wall Street, where, despite millions of tweet made by participants during the occupation, the movement did not get “trendy”

$\Rightarrow$ Coincidence?

$\Rightarrow$ The controversy after the American elections is also an example

ISSUE NUMBER TWO: CROWDS AND CLOUDS

Can an Algorithm be Wrong?

How do we know if we are where it's at? **Tarleton Gillespie** explores the controversy over Twitter Trends and the algorithmic 'censorship' of #occupywallstreet.

Tweet

Throughout the Occupy Wall Street protests, participants and supporters used Twitter (among other tools) to coordinate, debate, and publicize their efforts. But amidst the enthusiasm a concern surfaced: even as the protests were gaining strength and media coverage, and talk of the movement on Twitter was surging, the term was not "Trending." A simple list of ten

PLATFORMS' CONTROL OF THEIR BIG DATA

Case: Facebook and Cambridge Analytic

Evidence that Cambridge Analytics took part of its big data on users and used to derive psychological features of the users

Cambridge Analytics then sold these analyses to other users who used them to influence electoral outcome

PB: apart from influence on elections, **big problem is lack of control** of Facebook, no safeguard of privacy

THE NEW MONOPOLIES

The big platforms, the GAFA (Google, Amazon, Facebook e Apple), are owners of the platforms but also owners of all the data that users of their platform release.

There is a problem of **privacy** and of **concentration of information** in organisations which do not follow the public interest but private interests…

SMEs AND BIG DATA

SMEs have access to Big Data in a cheap way by purchasing cloud computing services

They can thus collect all the data on their customers, their products and production processes and can thus optimise their supply and offer services together with their products.

However, clouds are owned by the GAFA…

GAFA = oligopoly

They are able to predate on smaller players thanks to the economies of scale resulting from their large size

+

They simply absorb competitors that may become much more competitive than they are

Subscribing to their cloud service means letting them access to all their data…

ANOTHER PROBLEM REGARDS CONNECTION INFRASTRUCTURE

i.e. 5G which is being developed

World leader in the development of 5G infrastructure = HUAWEI (China)

The USA are behind in 5G technological development

Europe: Nokia and Ericsson are quite good but not to the level of Huawei

➔ HUAWEI (China) is trying to sell its 5G infrastructure all over the world

Problem: with hyperconnection and digitalisation enabled by the 4th Industrial Revolution the company that will operate this infrastructure will have access to extremely confidential information:

All data about a hospital, a city, a nuclear station, making it possible to completely disrupt these entities.

➔ There is strong suspicion of link between Huawei and Chinese secret services

➔ The USA have refused to be supplied by Huawei

➔ However, US companies do not have alternative offer: China is winning in the technological race on this aspect

➔ Europe? Is in between the USA and China, trying to preserve relations with both countries: has not say no to Huawei but has not say yes either…

OTHER EFFECT OF ALGORYTHMS

DYNAMIC PRICING

DYNAMIC PRICING CONCERNS ECOMMERCE

When we search for products on platforms such as Amazon, and when we buy products, we release data on our tastes and on our purchasing behaviour…

… which platforms' algorythms collect and analyse to determine prices

Dynamic pricing = price discrimination strategy

= constant adjustment of prices according to the evolution of supply and demand, and other parameters

Example:

A study in the USA showed that Amazon changed prices more than 2.5 milion times in just one month, in December 2013!!!

So there are two main functions of IA, based on the analysis of data collected from consumers:

1. Matching of supply to consumers' tastes
2. Adjustment and personalisation of prices

This is no longer equilibrium price where the supply and demand curves meet, as in traditional microeconomics!

Algorithms are able to propose prices that are very close to the maximum price each consumer is willing to pay (= mass customisation!)

Is e-commerce favourable to SMEs?

YES: all firms, even very small ones, can create a platform, which is not costly

NO:

1. Consumers tend to prefer the same shops, where they are used to buy, even online: this implies that a new online shop must spend a lot of money in marketing and advertising in order to convince consumers to buy on their platform

2. Another initial cost (entry barrier) is that a platform must accumulate sufficient data on searches and sold products in order to make dynamic pricing profitable (hence initially profits are low, which an SME has more difficulty to support)

INDUSTRIAL REVOLUTION AND NEW MARKETS / NEW TECHNOLOGIES

DIGITAL PLATFORMS HAVE INDUCED THE NECESSITY TO CONSIDER NEW REGULATION FOR ALL COUNTRIES

IN EUROPE: DIGITAL SINGLE MARKET

- PLATFORMS
- ROBOTS

PLATFORMS

Existing European regulation that applies to digital platforms:

Directive on contracting conditions with consumers, on commercial practices, on consumers' rights

+

e-commerce, services, and advertising directives

=> Not specific to platforms

Problems:

1. **Existing regulation is based on linear business models, not platforms' business models (networks)**
2. **Contract rules only regard relationship with consumers**

Business model

European regulation considers that the responsibility for product quality is that of the final seller, who must identify the failing supplier if quality is not adequate

Platforms: networks of users where consumers are also producers

How can the responsible supplier be identified in this case?

Consumers' rights

Platforms are communities of users, which can be both producers and consumers, and do not necessarily realise a transaction

European regulation is based on contracts between sellers and buyers: how to apply them to case of platforms?

- **European regulation adopted so far has mainly regarded ecommerce platforms (which are market places)**
- **Need to develop a specific regulation which clearly defines concepts such as platform users, platform operators, reputational systems, etc.**

Reputation systems

- Platforms should be obliged to provide clear information on how the reputational systems are defined (but this makes it easy to manipulate scores)
- Platforms should also be obliged to check the quality of their reputational scores

Reputational systems:

- **Can be biased if based on users' assessment, with the platform offering discounts if the user makes an evaluation**
- **The methodology of computation of rating scores is generally unknown, but would be useful to assess whether the scores actually mean anything**

However, European regulation has made substantial progress in recent years

Particularly with the GDPR directive in 2018

Cybersecurity: adoption of a directive on security of networks and information systems (2016)

Creation of a European agency for the security of networks and information (European Network and Information Security Agency) in 2004, based in Greece.

It develops methods to face cyber attack and helps member states develop their security

EU GDPR – General Data Protection regulation (May 2018)

<u>Art 17. Right to erasure (right to be forgotten)</u>

The data subject has the right to ask the controller to erase his/her personal data without unjustified delay, if:

(conditions)

a) The personal data are no longer necessary for the aims with which they have been collected;

b) The data subject revokes consensus on which the data collection is based;

c) The data subject is against data collection;

d) The personal data have been illicitly collected

e) Personal data must be erased due to a legal obligation resulting from European Union Law or a national Member State's law;

The controller (platform collected personal data) must erase the data, taking technological and cost constraints into account

Therefore, a European consumer can ask a platform to reveal which personal data it has collected and can ask to erase them

Platforms must always be able to demonstrate that users have agreed to the collection and treatment of their data

These are real progress… but which individual user would dare asking a platform operator (Google, Facebook, …) to see what personal data it has collected from his/her use of the platform and also ask to erase them?

Have you ever tried to find out how to make that request on Google search engine?

NEW DIRECTIVE ON COPYRIGHTS IN THE DIGITAL SINGLE MARKET

APRIL 2019

Digital platforms are directly responsible for the contents posted on their sites

They must negotiate agreements with creative persons (musicians, writers, journalists, artists, etc.) to get authorisation to use their works

For instance, Youtube video creators using songs from particular bands must ask them authorisation before posting their video

REGULATING ROBOTS AND AI

- **European Parliament Resolution of robotics legislation**

Proposes principles that regulation on robotics should follow:

- **Definition of a smart robot (capacity to acquire autonomy thanks to sensors, to learn thansk to algorithms and big data)**
- **European robotics charter: code of conduct for engineers building robots**

Smart robot is characterised by:

– autonomy obtained from sensors and/or data exchange (interconnection);

– self-learning from experience and interaction;

– behavioural adaptation to the environment;

– absence of life in biological terms.

Robotics Ethical code of conduct

Robot development should:

- **Aim at complementing human capacity and not substitute it;**
- **Guarantee that humans can at any time maintain control over smart machines**
- **Consider the possibility of emotional attachment of humans to robots, particularly among vulnerable groups (children, elderly and disabled)**

Conclusions

Industrial revolution has also strong impact on institutions, which must adapt to technological changes and the socio-economic effects

The timing of institutional adjustment is generally much longer and delayed relative to business

Effects of platform businesses on SMEs:

- **They represent a new productive sector, where SMEs can also operate**
- **They are new market intermediary: easing SMEs' access to global markets**
- **They also make it easy for SMEs to directly interact with their consumer (in R&D) and access to finance (crowdfunding)**
- **Problem: large market power of the big platforms (GAFAM)**

➔ Industrial policy must favour SME adaptation and prevent anticompetitive behaviour