

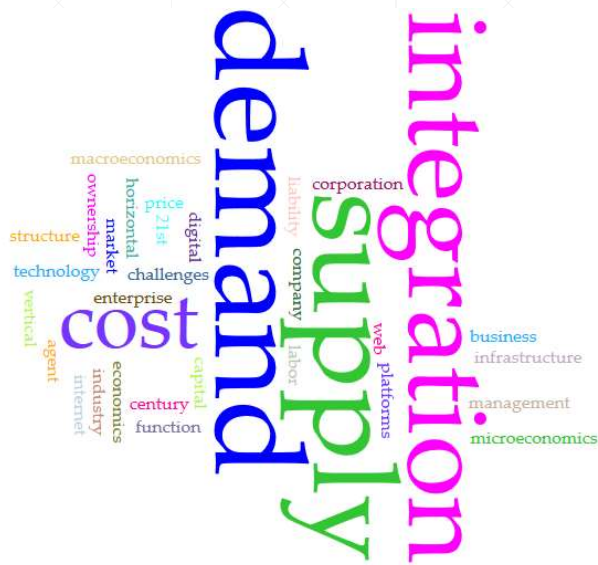
Enterprise Essentials

Class # 2 - The business environment: industries and markets

EPITA | Fall 2021

Valeriu Petrulian

Enterprise Essentials Class 2



- Admin
- Recap
- Thoughts for the day

Course Breakdown

EPITA | Fall 2021

Class	Date & Time Topics
Class 1	Setting the scene: The economy and the firm as an economic agent
Class 2	The Business Environment: Industries and Markets
Class 3	Enterprise Models
Class 4	Managing a business organization
Class 5	Final Presentations & Course Wrap-Up

Today's Reading:

Michael E. Porter. *Understanding Industry Structure*. Harvard Business School, case 9-707-493, August 13th, 2007

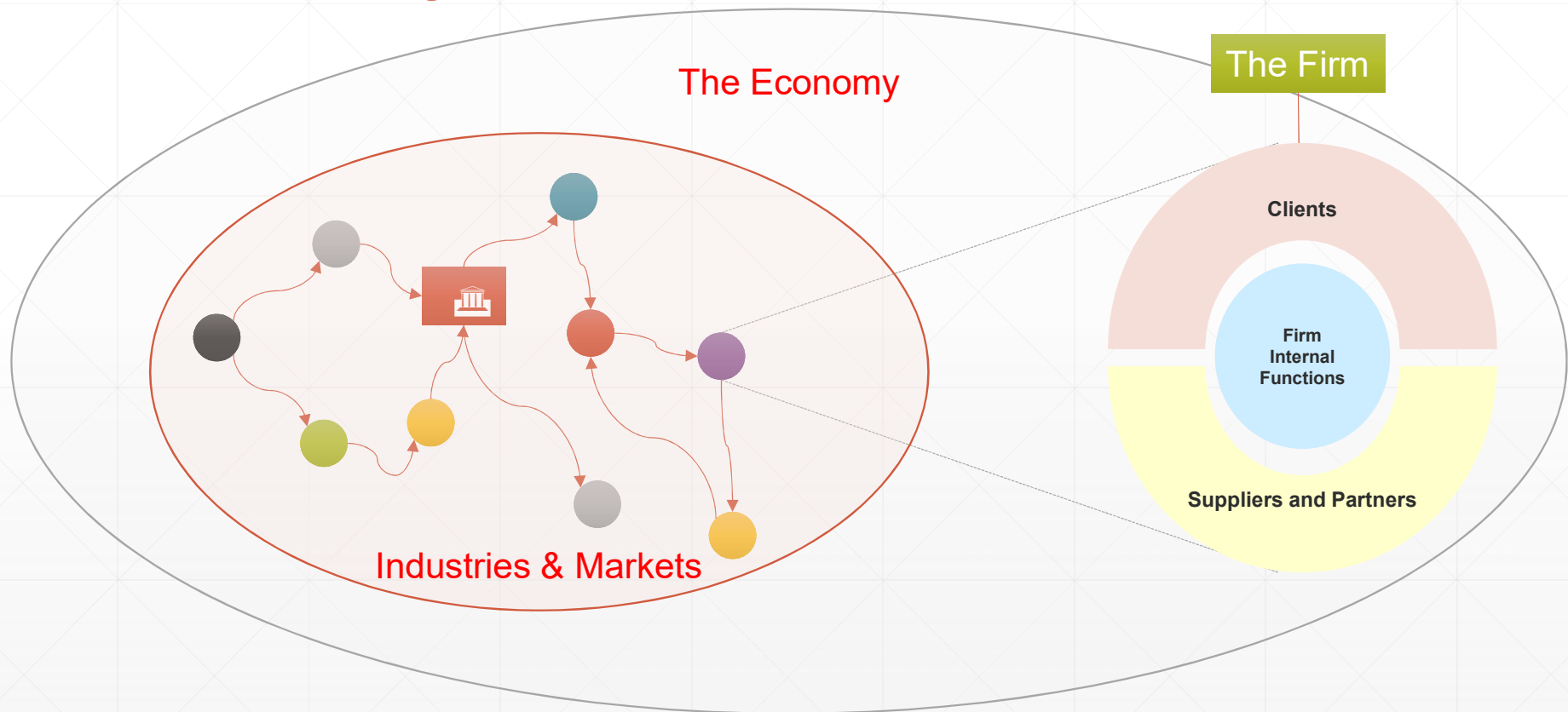


The Business Environment: Industries and Markets

Concepts: Industrial Organization, Market Dynamics, Integration, Barriers to Entry, Michael Porter's 5F Framework, SWOT, Information industries

Our playground

The economy; industries, markets, firms



Value (economics)

From Wikipedia, the free encyclopedia

Not to be confused with [Market value](#).

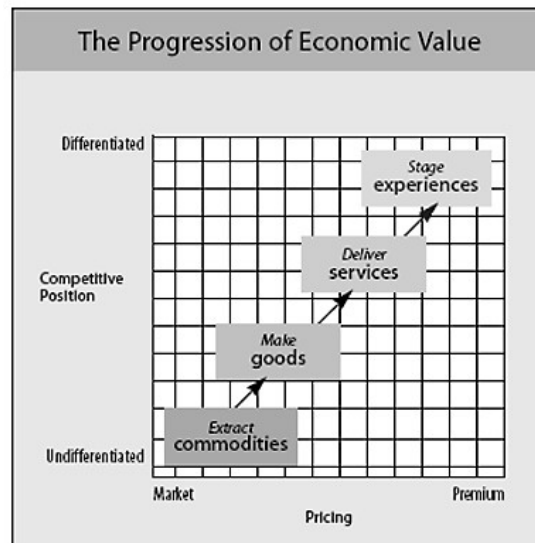
Economic value is a measure of the benefit provided by a [good](#) or [service](#) to an economic [agent](#). It is generally measured relative to units of [currency](#), and the interpretation is therefore "what is the maximum amount of money a specific actor is willing and able to pay for the good or service"?

Note that economic value is *not* the same as market price, nor is economic value the same thing as [market value](#). If a consumer is willing to buy a good, it implies that the customer places a higher value on the good than the market price. The difference between the value to the consumer and the market price is called "consumer surplus". It is easy to see situations where the actual value is considerably larger than the market price: purchase of [drinking water](#) is one example.

The economic value of a good or service has puzzled economists since the beginning of the discipline. First, economists tried to estimate the value of a good to an individual alone, and extend that definition to goods which can be exchanged.

From this analysis came the concepts [value in use](#) and [value in exchange](#).

[https://en.wikipedia.org/wiki/Value_\(economics\)](https://en.wikipedia.org/wiki/Value_(economics))



Welcome to the Experience Economy. By B. Joseph Pine II, James H. Gilmore.
Published in the July–August 1998 HBR Issue
<https://hbr.org/1998/07/welcome-to-the-experience-economy>

Value

“Value” measures the benefit that an economic agent (individual or firm) derives from a good or from a services. While a subjective concept in general, in economics, value is measured in currency units (monetary value).

In economic terms, one may also refer to the concept of “utility” which is the satisfaction an economic agent derives from the consumption of a good or service.



<http://archive.francesoir.fr/pratique/argent/bourse-paris-cloture-en-baisse-98261.html>



<http://www.entreprises.gouv.fr/semaine-industrie/activites-industrielles/industrie-petroliere?language=fr>

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Industries and Markets

In Economics, an Industry defines a group of production activities classified according to the good or service it provides.

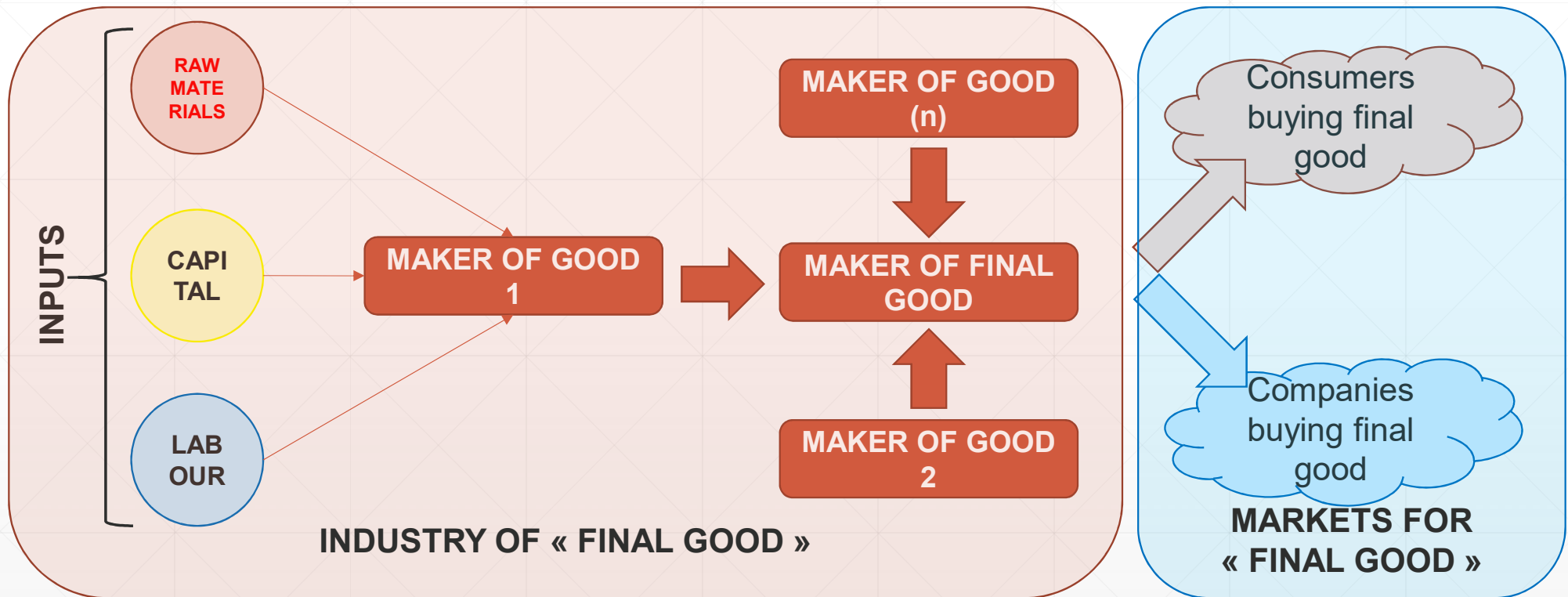
A Market, in turn, is an exchange mechanism that brings together buyers and sellers.

Examples:

The industry of leather goods and the market of men shoes

The glass and metal industries and the market for packaging of soft beverages

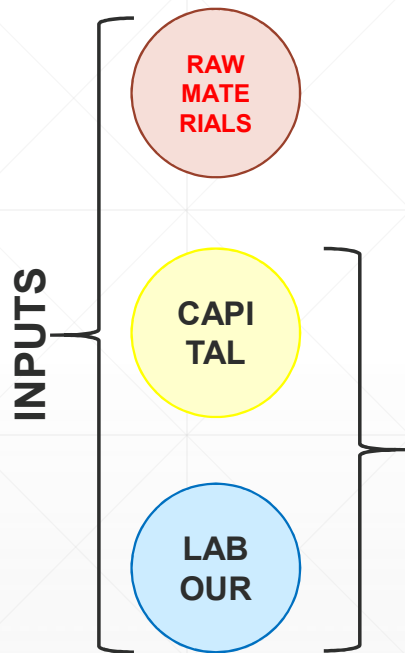
Industries and Markets Framework



NB. In a market economy, the « inputs, » good 1, ..., good (n), are tradeable as well, hence « markets. »

Digitalization of...

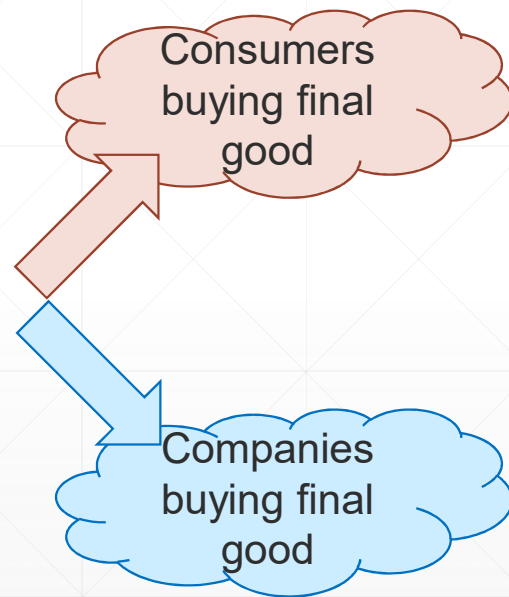
① Inputs



- **Capital** – is becoming increasingly digital, as more and more companies:
 - a) utilize Information Technologies
 - b) « digitalize » their assets
- **Labor** – is getting more and more « digitalized » as:
 - a) Professionals in all sectors and company functions acquire « digital » skills (ex: programming, data analytics, digital literacy and numeracy, digital marketing)
 - b) New skills are required (ex: Data Scientist, Data Analyst, cybersecurity experts, ML and AI experts, statisticians)

Digitalization of ...

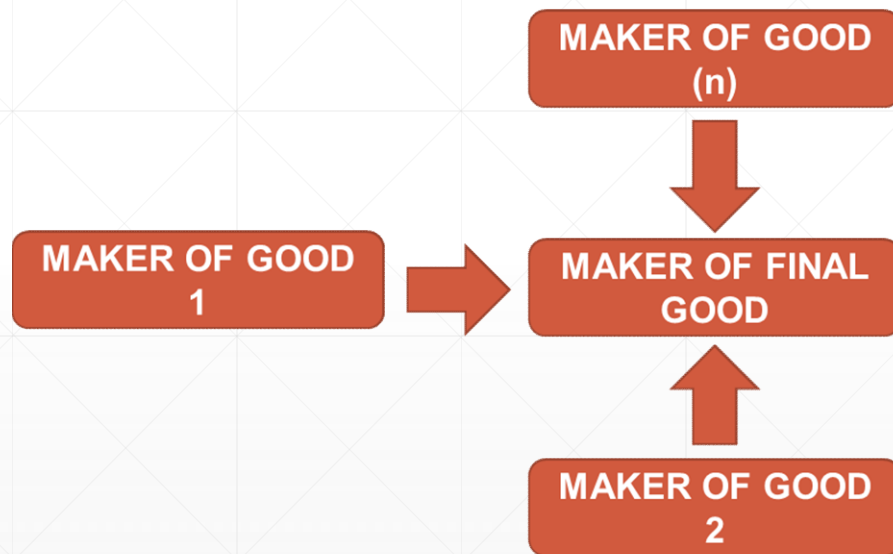
② Transactions



- **Example:** mobile Point of Sale payments
 - “Transaction value in the Mobile POS Payments segment is projected to reach €1,778,322m in 2020
 - Transaction value is expected to show an annual growth rate (CAGR 2020-2024) of 19.2% resulting in a projected total amount of €3,593,715m by 2024”
(**source:** Statista)
- **Examples of extreme situations:**
 - a) High frequency trading in financial markets
 - b) Real-time-bidding in online advertising

Digitalization of ...

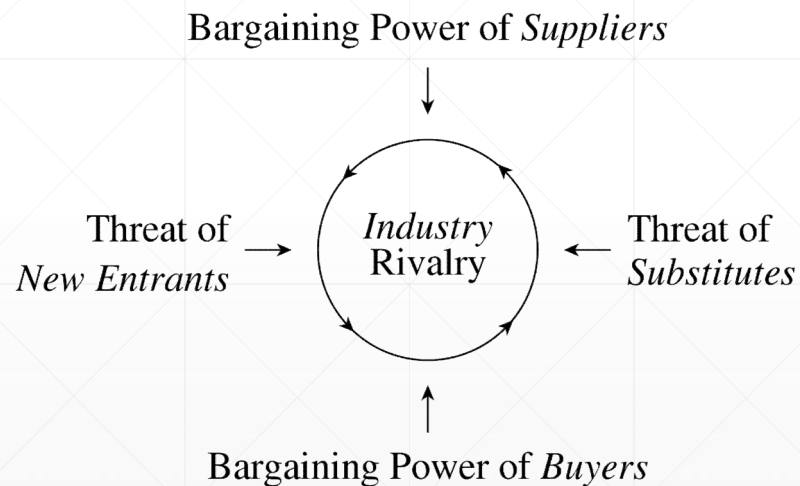
③ Value chains



- **Internally**, companies are transforming themselves through the deployment of Information Technology applications and systems, across the entire organization (ex: Marketing/Sales: CRM, HR: HCM, operations: SCM, finance & admin: ERP, ...)
- **Externally**, industry value and supply chains are becoming more digitally integrated (ex: procurement, Product Lifecycle Management, ...)

Industries and Markets

Michael Porter's « 5 Forces Framework »



https://en.wikipedia.org/wiki/Porter%27s_five_forces_analysis

According to Porter, a firm's competitive environment is determined by:

1. Threat of new entrants
2. Threat of substitutes
3. Bargaining power of customers
4. Bargaining power of suppliers
5. Competitive rivalry

Industries and markets

The communications industry

RENATER (réseau national de télécommunications pour la technologie, l'enseignement et la recherche) est le réseau informatique français reliant les différentes universités et les différents centres de recherche entre eux en France



<http://fr.slideshare.net/attahadi/reseau-44887391>



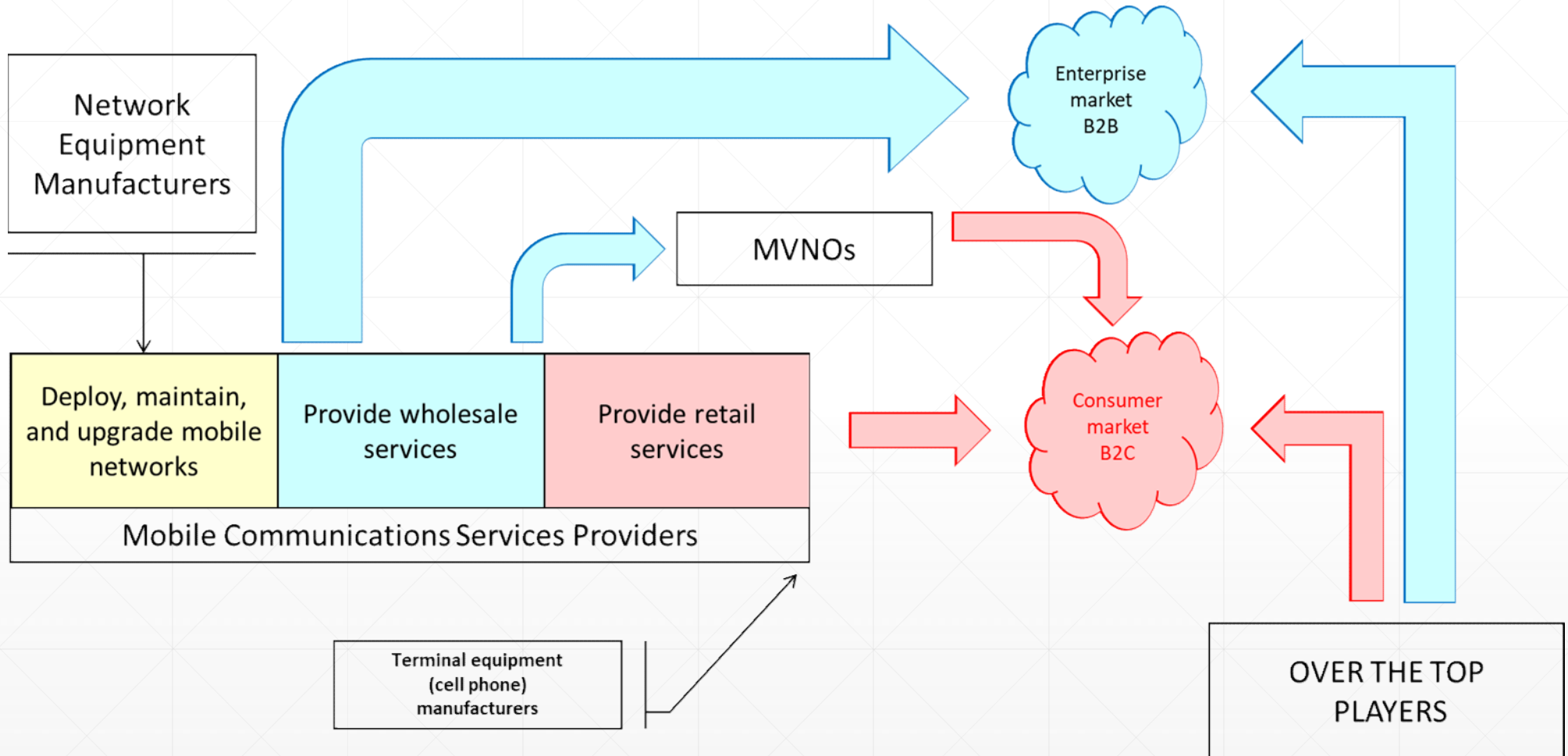
<http://fr.freepik.com/photos-vecteurs-libre/ancien-telephone>

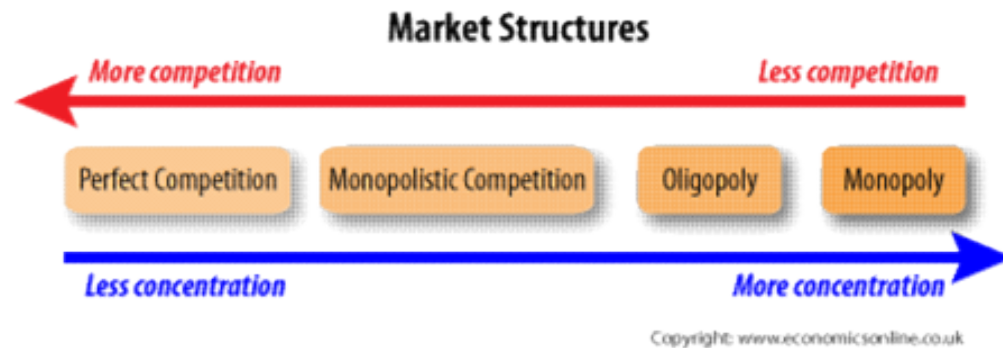
□ Based on the original patent of Alexander Graham Bell (1876), it has evolved in an “industry” thanks notably to Theodore Vail (1848 – 1920) who has set the basis and defined the principles for the organization of a national telephone system

□ Economic concepts to be discussed:

- Industry Rivalry
- Economies of scale

Mobile Communications Industry Structure



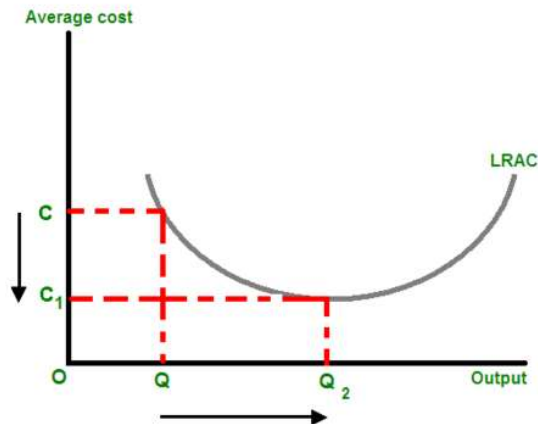


http://www.economicsonline.co.uk/Business_economics/Competition_and_market_structures.html

Market Structure

In general, a “market” is composed of a set of firms producing and selling similar goods or services.

The number of the firms will determine the market structure in terms, notably, of: competition and concentration.



https://en.wikipedia.org/wiki/Economies_of_scale

On peut formaliser cette définition en écrivant:

$$C(X_1, X_2) < C(X_1, 0) + C(0, X_2)$$

Où C représente la fonction de coûts, X_1 et X_2 les deux biens produits.

https://fr.wikipedia.org/wiki/%C3%89conomies_d%27envergure

Economies of scale and Economies of scope

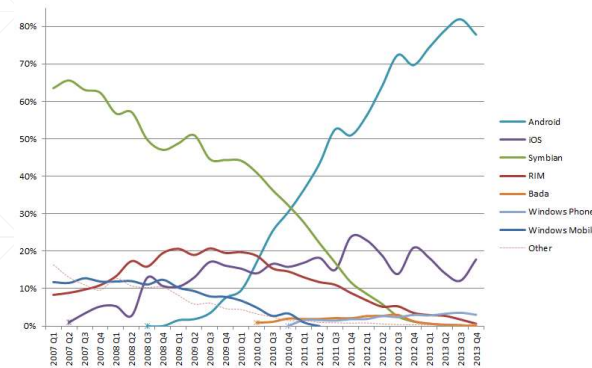
Economies of scale (can be internal or external) are cost advantages that enterprises obtain due to size, output, or scale of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output.

Economies of scope (John C. Panzar and Robert D. Willig, 1977, 1981) are economies that are generated through diversification of products (output).

The telecommunications industry Snapshot

- Fixed | Mobile | Unified communications
- Longtime a monopoly
 - « Natural monopoly », Public (Universal) Service
 - Network effects
- Deregulation: first in the US (AT&T mid 80s) and then in Europe and the rest of the world
- In France:
 - At the beginning of the '90s: France Telecom
 - Now (March 2021): Orange, Altice SFR, Bouygues Telecom, Iliad-Free
 - RIP: Siris, Cegetel, LDCOM, ...

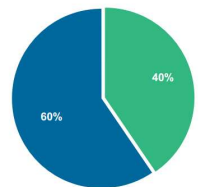
World-Wide Smartphone Sales (%)



https://en.wikipedia.org/wiki/Mobile_operating_system

1995
80MM+ Mobile Phone Users
1% Population Penetration

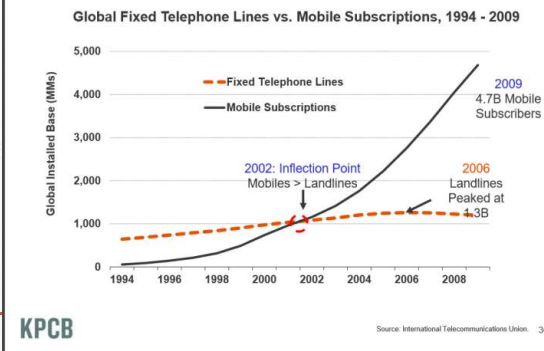
2014
5.2B Mobile Phone Users
73% Population Penetration



Smartphone Feature Phone

KPCB. Internet Trends Report by Mary Meeker. May 2015.

First Generation of Re-Imagination - After 125 Years, Landlines Were Surpassed by Mobiles in 2002



Industries and Markets

Broadcast Media Industry - Radio

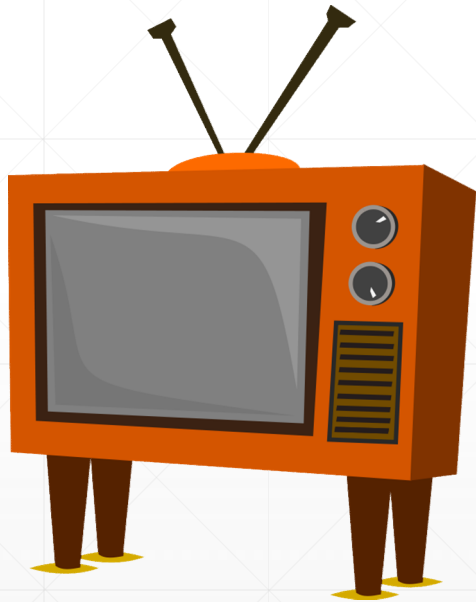


http://www.radiomuseum.org/r/ducretet_piano_7_lampes.html

- ❑ Marconi (1895)
- ❑ Mass broadcasting (1920)
- ❑ First transistor radio set (1954)
- ❑ Economic concepts to be discussed:
 - Threat of new entrants
 - Barriers to entry

Industries and Markets

Broadcast Media Industry - Television

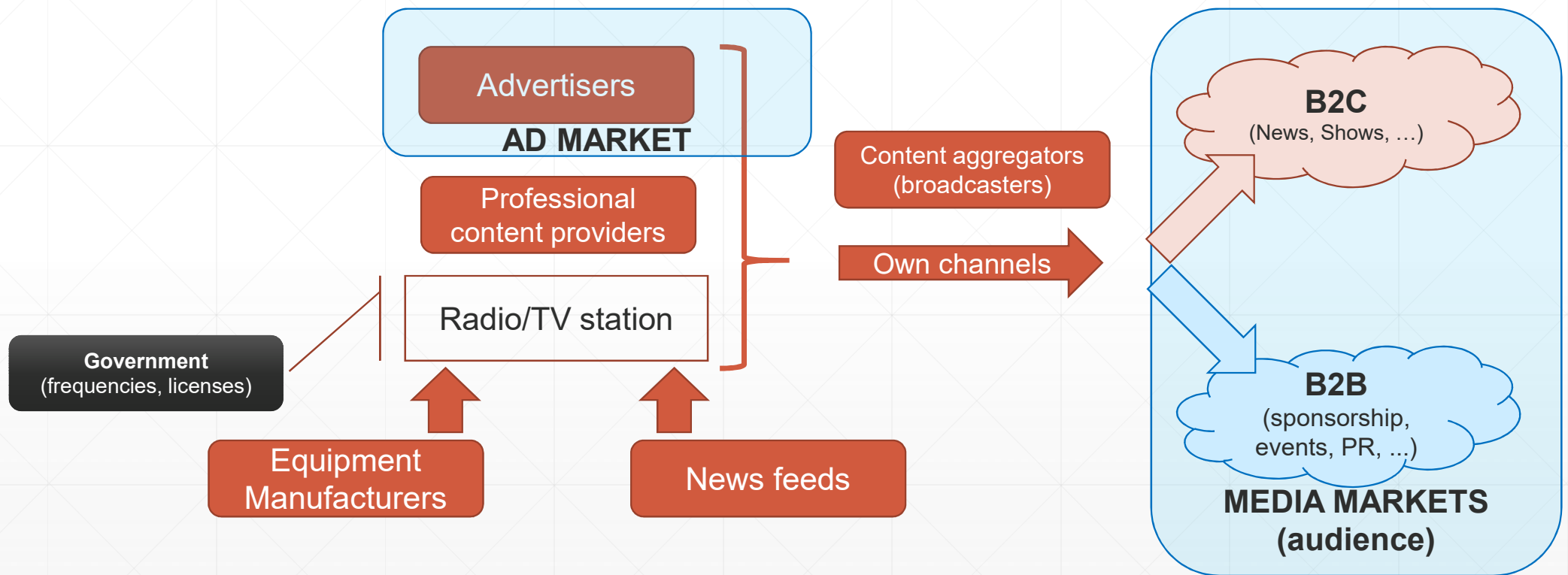


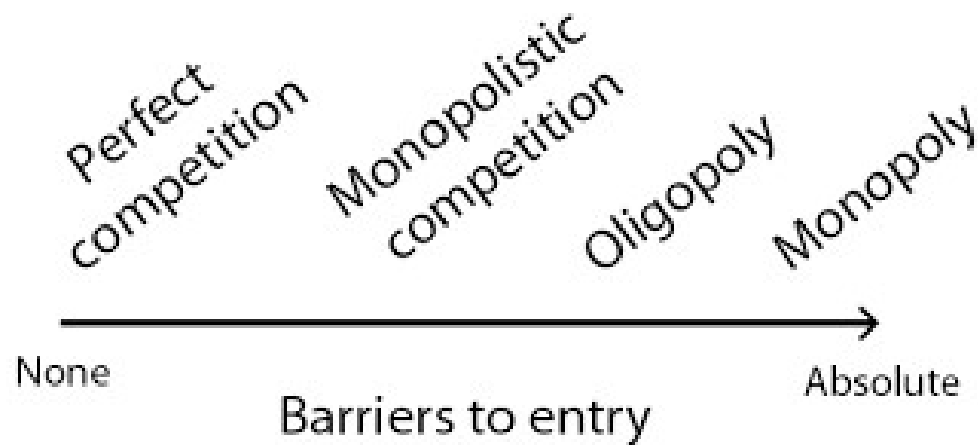
<http://www.clipartlord.com/free-vintage-television-set-clip-art/>

- ❑ Several technology innovations at the end of the 19th and beginning of the 20th century
- ❑ “Rich” and complex media
- ❑ Economic concepts to be discussed:
 - Threat of new entrants

Broadcast Media

Simplified industry structure





<http://www.policonomics.com/lp-oligopoly2-entry-barrier/>

Barriers to entry

Anything that prevents a new entrant into a market.

Barriers to entry may be numerous: advertising, know-how, proprietary technologies, customer loyalty, government regulations, product differentiation, etc

In some cases, barriers may be « statutory » meaning that the firms existing in the market need special license in order to operate

Radio evolution

Snapshot

- Vacuum Tube Radio | Transistor | MP3 | Audio streaming
- Radio utilizes scarce resources which are public goods (radio spectrum frequencies), Government intervention is necessary to allocate these goods among the various market players
- The FM radio stations (80') have introduced:
 - Interactivity into a broadcasting (one-to-many) medium
 - A form of competition in an industry traditionally dominated by one single player
 - User-generated content

TV (Video) Evolution Snapshot

- Video broadcasting| VCR | DVD Player | Video streaming
- In general, most countries have chosen an oligopolistic market structure (several players, with one of them owned by the Government)
- TV companies have, basically, 4 sources of revenues:
 - Public financing (through subsidies), Advertising-generated revenues (true for radio and print media, as well), Royalty fees (ex: “redevance” in France), Subscription-based models (PayTV, ex: Canal+ in France, HBO in the US)
- New entrants in the broadcast media arrive via:
 - News (24-H News, CNN, ...)
 - Content (movies, documentaries, ...): National Geographic Channel, Netflix, ...
 - Podcasters

Industries and Markets

Media – Print Media (Newspapers)

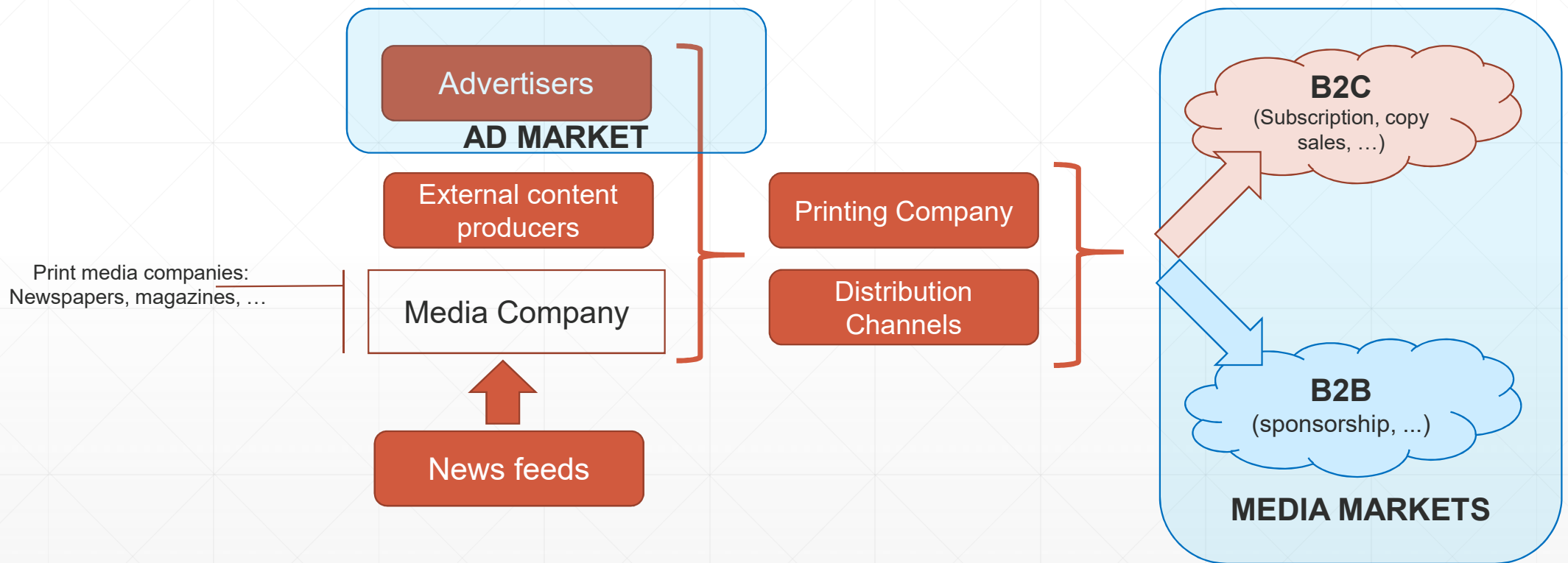


<https://www.independent.co.uk/news/media/press/the-media-column-the-newspaper-industry-is-still-fighting-for-life-but-there-is-hope-for-the-future-a6698871.html>

- ❑ First “newspaper” published in Strasbourg (cca. 1600)
- ❑ New printing technologies made newspapers an affordable information means during the industrial revolution
- ❑ The decline in advertising revenues and the competition on online media have fundamentally shaken the traditional print media
- ❑ Economic concepts to be discussed:
 - Threat of substitutes

Print Media

Simplified industry structure



Print Media

Threat of substitutes

PRINT MEDIA INDUSTRY

- A Journal/Magazine:
 - Provides content (articles, stories, news, cartoons, ...)
 - By leveraging contributing writers (journalists, columnists, novelists, cartoonists, ...) or
 - External contributions (writers, news feeds ...)
 - And advertising, to
 - Readers

SUBSTITUTES

- Free magazines (20Minutes, Metro, Direct Matin, ...)
- On-line information sources (MSN, Yahoo, AOL, etc)
- Online news aggregators (Feedly, Google news, news360, ...)
- Specialist information services (Bloomberg, etc.)

Industries and Markets

High Tech (Computer Hardware) Industry



https://fr.wikipedia.org/wiki/Machine_analytique

https://en.wikipedia.org/wiki/File:Turing_machine_1.JPG

https://en.wikipedia.org/wiki/Mainframe_computer

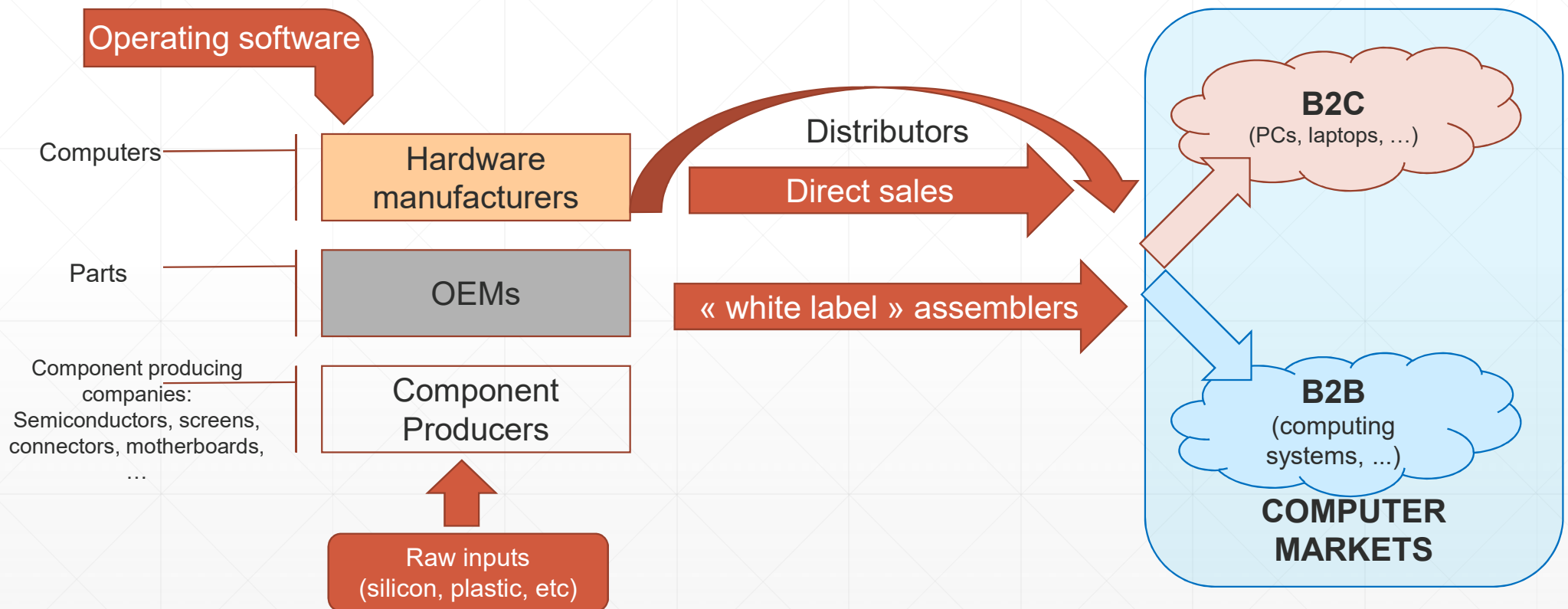
https://en.wikipedia.org/wiki/IBM_PC_compatible

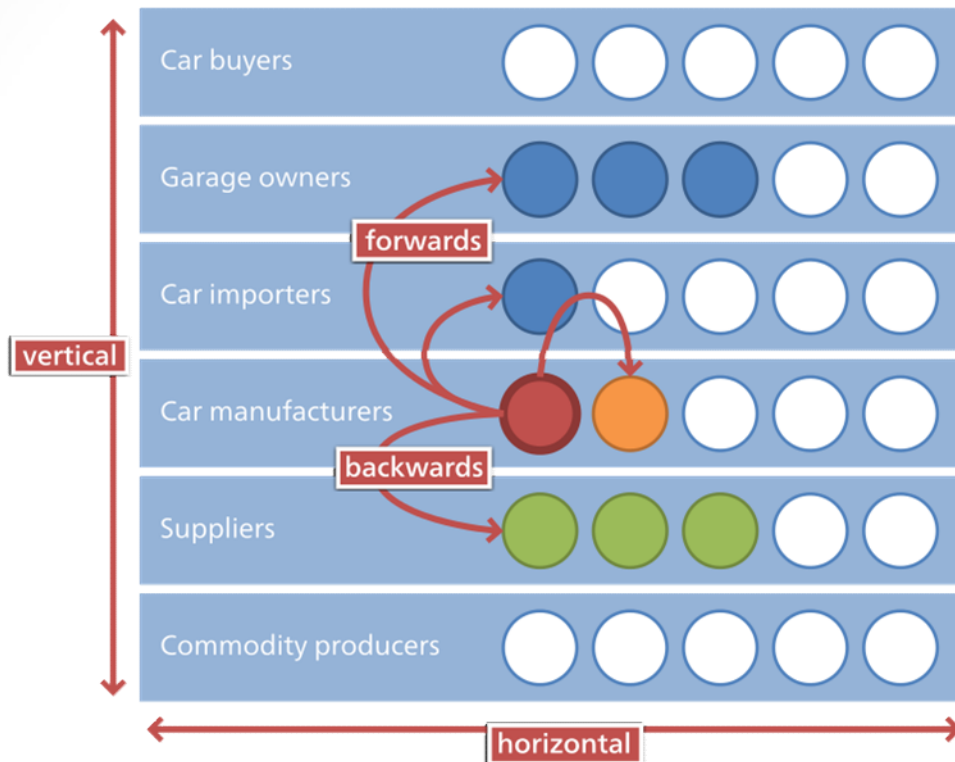
<http://www.theguardian.com/commentisfree/2015/jun/25/wikipedia-editors-dying-breed-mobile-smartphone-technology-online-encyclopedia>

- ❑ Charles Babbage (1888) and Alan Turing (1945), among others
- ❑ Mainframes ('70s), PCs ('80s)
- ❑ TCP/IP (mid '70s) and WWW (early '90')
- ❑ Economic concepts to be discussed:
 - Supplier bargaining power
 - Horizontal and Vertical Integration

Computer Industry

Simplified industry structure





https://en.wikipedia.org/wiki/Vertical_integration

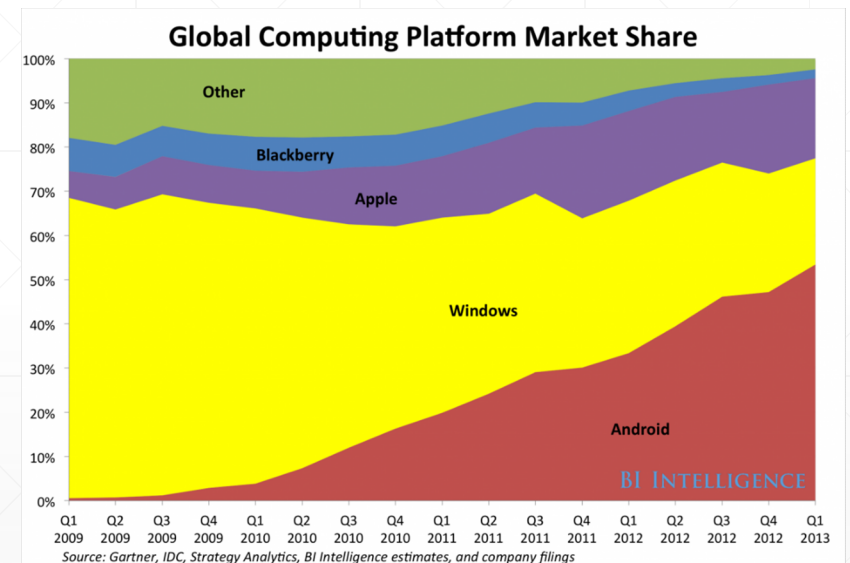
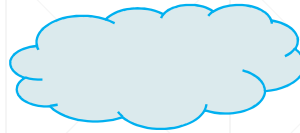
Vertical and Horizontal Integration

Vertical Integration is the situation where the supply chain of a product is controlled by a single company.

Horizontal Integration, in contrast, occurs when a company produces several products related to one-another.

Computer Hardware Evolution Snapshot

- Hardware | Software | Services |
 - Recently: SaaS | PaaS | IaaS
- Software – usually priced and sold as license
 - New models emerge:
 - Subscription (to cloud services)
 - Freemium models (for apps)
- RIP: DEC, Silicon Graphics, ...
- “Computing Platforms” emerge as fundamental building blocks of our increasingly interconnected world



<http://www.businessinsider.com/windows-monopoly-is-getting-destroyed-2013-7?IR=T>

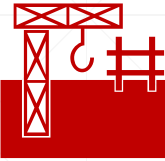
Computer Hardware Supplier Bargaining Power

HARDWARE MANUFACTURERS

- Around 150 companies listed currently, among which the most prominent ones are:
 - Apple
 - IBM
 - HP
 - Dell
 - Acer
 - Lenovo
 - Toshiba

CHIP MANUFACTURERS

- INTEL
- Taiwan Semiconductor Man.
- Qualcomm
- Broadcom
- Micron technology
- Texas Instruments
- ASE Technology Holding
- NVIDIA
- STMicroelectronics
- NXP Semiconductors



Class Assignment

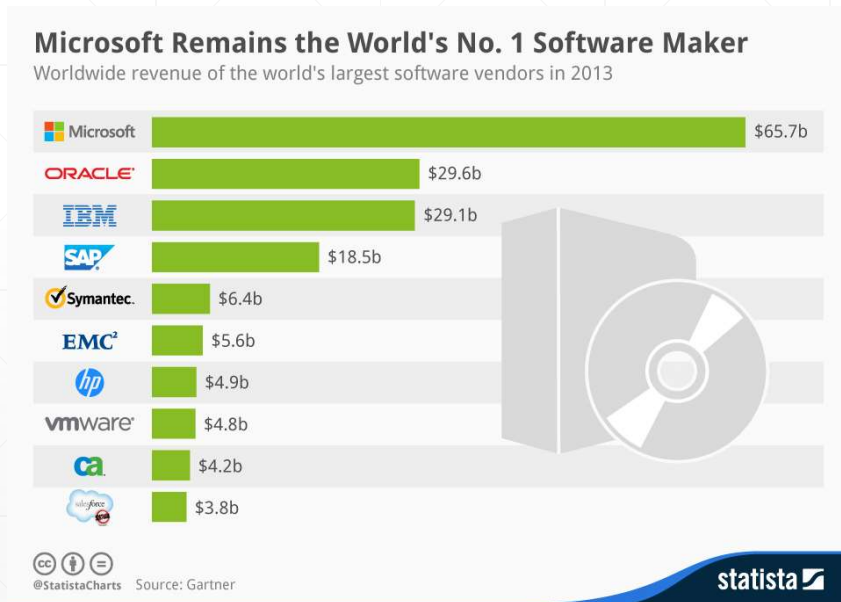
Based on today's reading material and the discussion so far, please comment on a company's "market shift" and its consequence on industry structure

Ideas to choose from (non-exhaustive list):

- Apple entering the music market via iTunes and Beats Music
- Apple entering the mobile phone market via the iPhone, Microsoft entering the mobile phone market via Nokia, Google entering the mobile phone market via Android
- Facebook entering the communications market via Instagram and WhatsApp
- Amazon entering the IT market via AWS
- Amazon entering the entertainment market via Prime Video and Prime Music, Amazon entering the gaming market via Twitch
- Orange entering the financial services market via Orange Bank

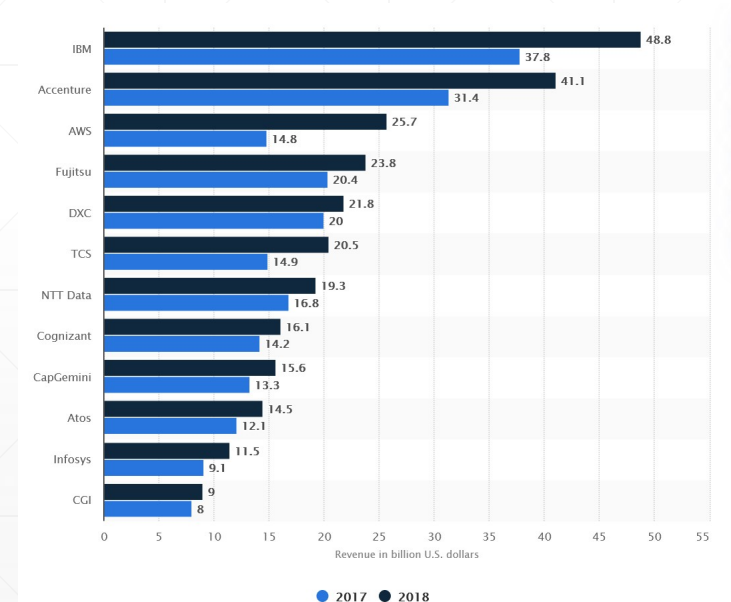
Software and Services Industry

SOFTWARE PROVIDERS



Source: www.statista.com/chart/2078/top-10-software-vendors-2013/

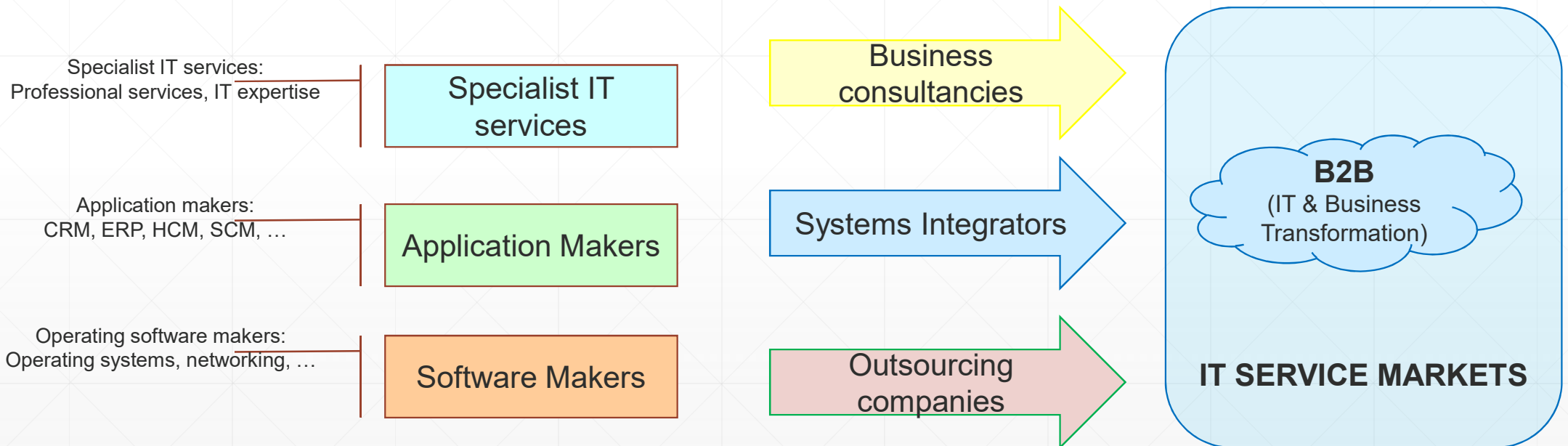
SERVICES PROVIDERS



Source: <https://www.statista.com/statistics/479308/it-services-provider-revenue-ranking/>

Software and Services Industry

Simplified industry structure



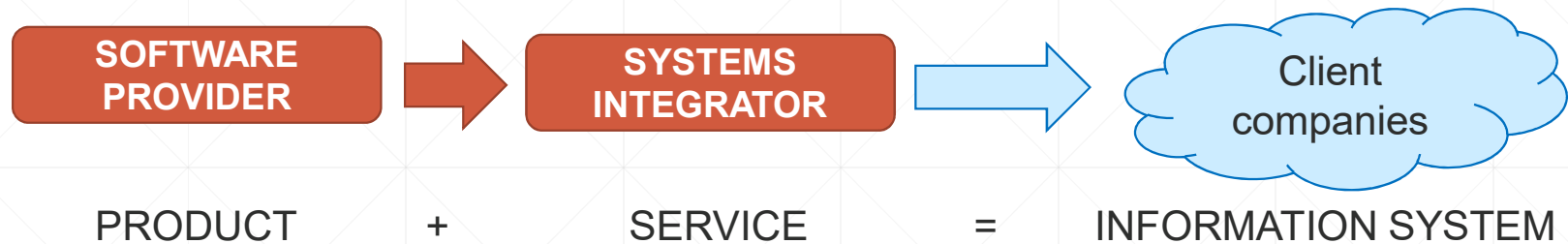
Software and Services Industry

Bargaining power of customers

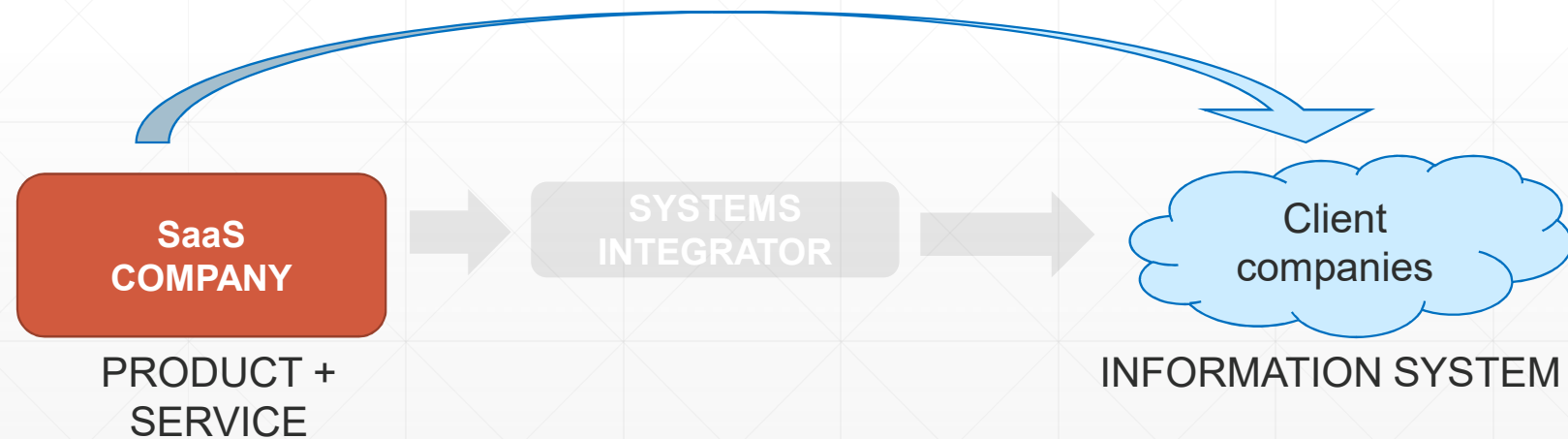
- Companies (especially large ones) negotiate fiercely their IT-driven transformation programs
- As a result:
 - Software companies tend to bundle prices (for example: database and operation systems, operating systems and business applications)
 - IT services companies try to avoid « commoditization » of their services and develop additional (higher-value) consulting services (ex: management and business consulting, web design, etc)
 - Software-services partnerships emerge (for example: Oracle-Accenture in the early 2000s)
 - Cloud-based companies tend to develop their own services capabilities

Changing the value chain Software-as-a-Service (SaaS)

TRADITIONAL
VALUE CHAIN



CHANGED
VALUE CHAIN



About disruption

DEFINITIONS

- “The action of completely changing the traditional way that an industry or market operates by using new methods or technology.” (Cambridge Dictionary)
- « (to somebody/something) a situation in which it is difficult for something to continue in the normal way; the act of stopping something from continuing in the normal way.” (Oxford Learner’s Dictionaries)

INTERPRETATIONS

- In **creative destruction**, the goal is to tear down/clear away the existing so that a new foundation can be built, and the economy can expand. (Joseph Schumpeter)
- In **creative disruption**, the goal is to expose flaws in the current business model, highlight areas where improvement/changes are needed, and to help inspire adaptation of the business model for future growth. (Jean-Marie Dru, TBWA)
- In **disruptive innovation**, the goal is to bring about a new market entirely, in general, through technical innovation. (Clayton Christensen)

About competitive advantage

Definition: “A condition or circumstance that puts a company in a favorable or superior business position.” (Oxford Languages)

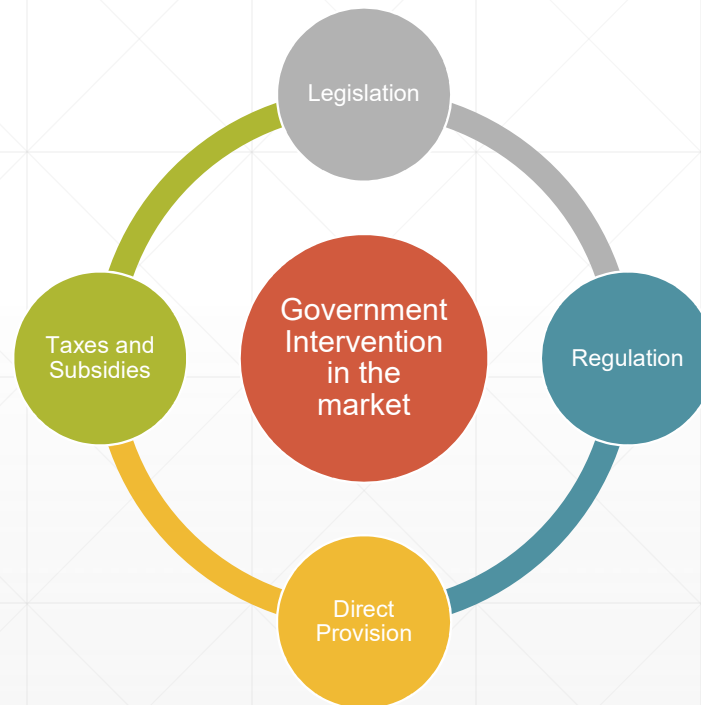
Sources of competitive advantage (Michael Porter):

1. Cost advantage
2. Differentiation advantage
3. Specialization advantage (Niche focus)

NB. Digital technologies may enable any of the 3, hence the ways to implement those and the consequences may be totally different, depending on the context.

Industries and Markets

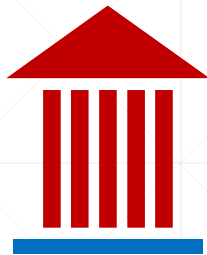
Government Intervention in the market



Industry regulation
Allocation of scarce resources
(example: spectrum auctions)

Industries and Markets

A 6th force? The role of regulation



« Regulation » covers a wide spectrum of external interventions into the market. These may be performed either by Governments, directly, or by dedicated organizations, called « Regulation authorities »

The reasons for such external interventions are, essentially, the following (Tirole, 2014):

1. Consumer protection (ex: addictions)
2. Negative externalities (ex: pollution)
3. Information asymmetry between firms and consumers (ex: prices and quality of consumer goods)
4. Equity considerations (ex: distribution of wealth)
5. Market power (ex: monopoly)
6. Long term (inter-temporal) protection (ex: bank deposits, insurance)

Industries and Markets

Class Discussion



Please comment on the potential differences between “traditional” industries and “high-tech” industries.

Traditional:

- Oil extraction, Mining
- Industrial manufacturing
- Traditional media
- ...

High-Tech:

- Software industry
- Internet (search, social networks, ...)
- On-line industries
- ...

“Should I stay or should I go?”

Analytical tool - SWOT Matrix

Strengths <ul style="list-style-type: none">- Internal strengths- Comparative advantage- What makes us good at what we do	Opportunities <ul style="list-style-type: none">- External positive factors- What is out there for us- Chances to seize, openings- Things we should « go for »
Weaknesses <ul style="list-style-type: none">- Internal areas of improvement- Things that we need to reinforce, develop, or acquire	Threats <ul style="list-style-type: none">- External factors of caution- Things we need to pay special attention to- External risks and uncertainties

Industries and Markets

Value chain of traditional industry (ex: petrochemicals)

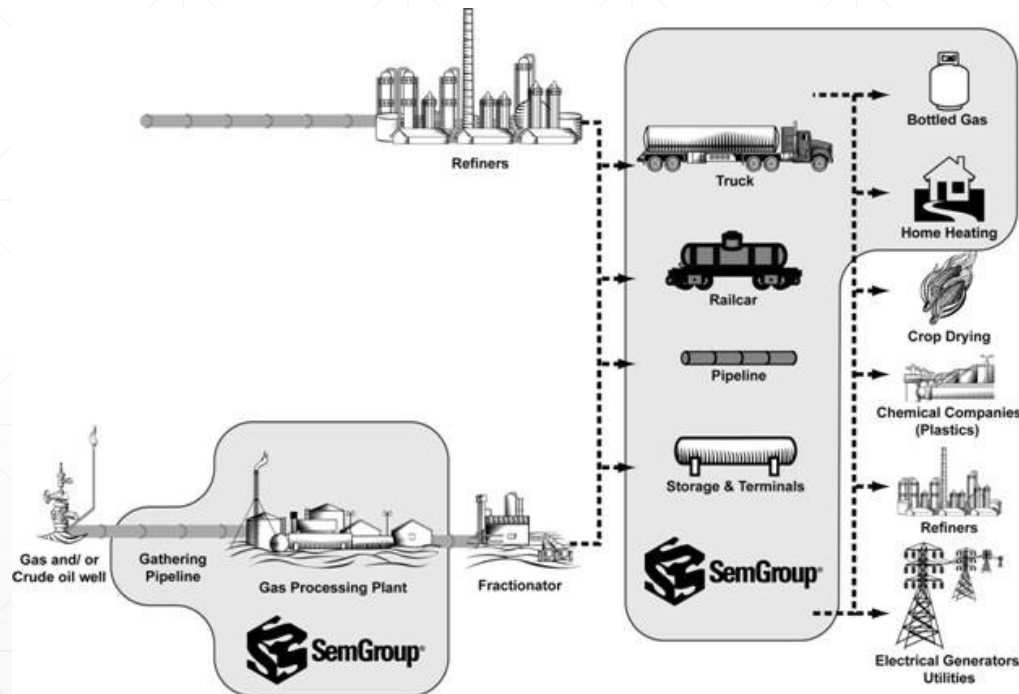
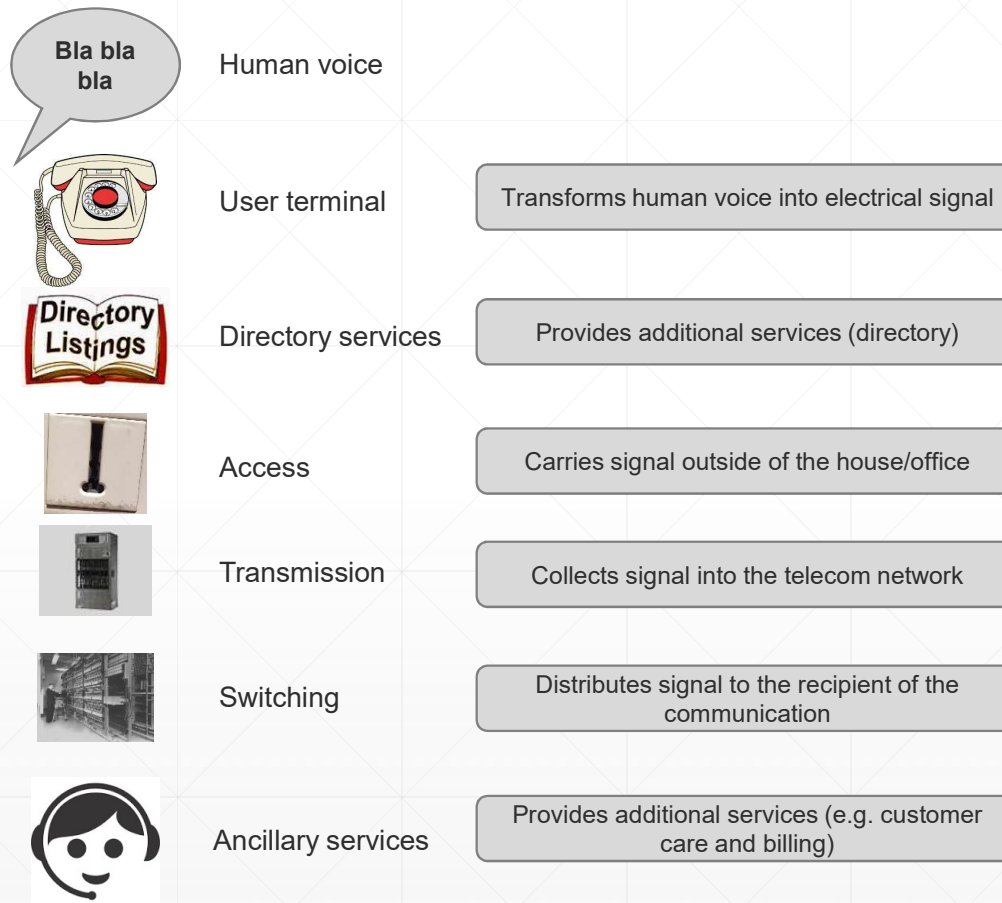


Illustration of petrochemical value chain:
<http://www.sec.gov/Archives/edgar/data/1489136/000119312510241187/d1012ba.htm>

Industries and Markets Illustration

Simplified value chain for traditional telecommunication services

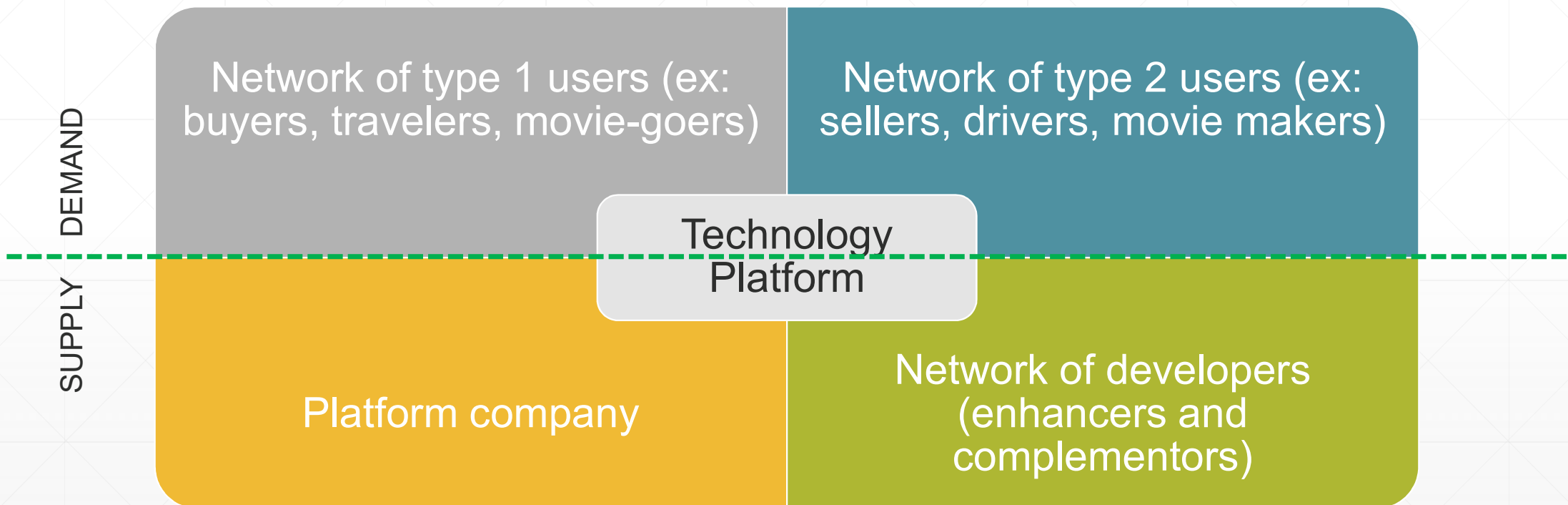


Discussion:

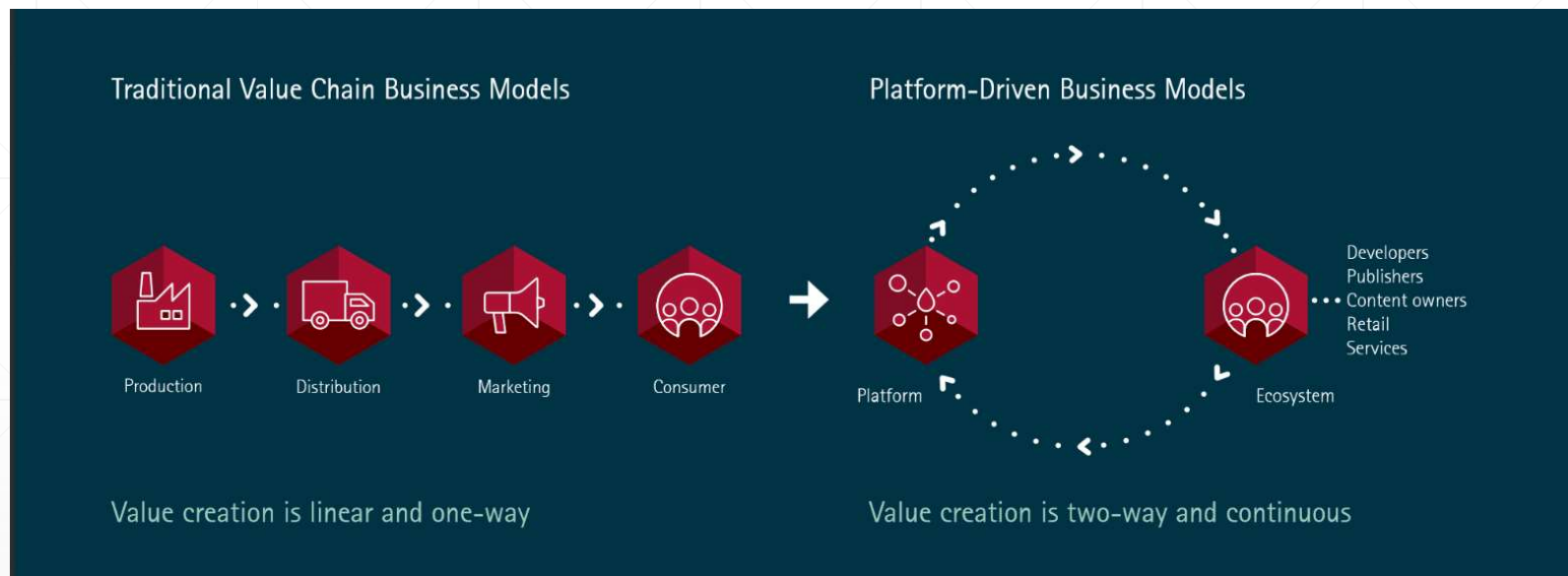


- Ex. # 1:
 - Replace the user terminal with a mobile phone, a computer, or a car
- Ex. # 2:
 - Replace access with a set-top box, an ADSL modem, or a WiFi router
- Ex. # 3:
 - Add 'connected home', 'connected car', ... type of services

Transformation of value chains



Industries and Markets Value Chain Comparison



Source: https://www.accenture.com/fr-fr/_acnmedia/PDF-2/Accenture-Platform-Economy-Technology-Vision-2016-france.pdf



Industries and Markets

Discussion: Traditional industries “going digital”

Strengths	Opportunities
<ul style="list-style-type: none">- Control of an existing supply chain- ...	<ul style="list-style-type: none">- Entering new markets (for example, IT services markets)- ...
Weaknesses	Threats
<ul style="list-style-type: none">- Level of mastery of digital technologies- ...	<ul style="list-style-type: none">- Losing money and credibility- ...

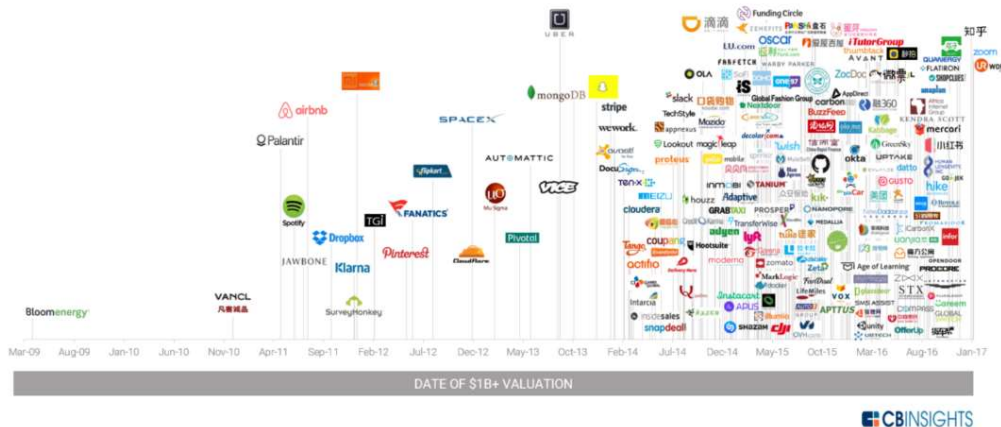
Industries and Markets Growth

- Growth *may be* one of the criteria in order for a business to determine whether it is successful or not
- Growth, in a market environment, is determined by:
 - The **growth of the market**, itself, the variation of the overall sales, year over year
 - The **overall size of the market**, the combined sales volume
 - The **market share** of a business, showing the percentage of its sales/total
 - **N-firm concentration ratio**, showing the combined market share of the N largest firms

Industries and Markets

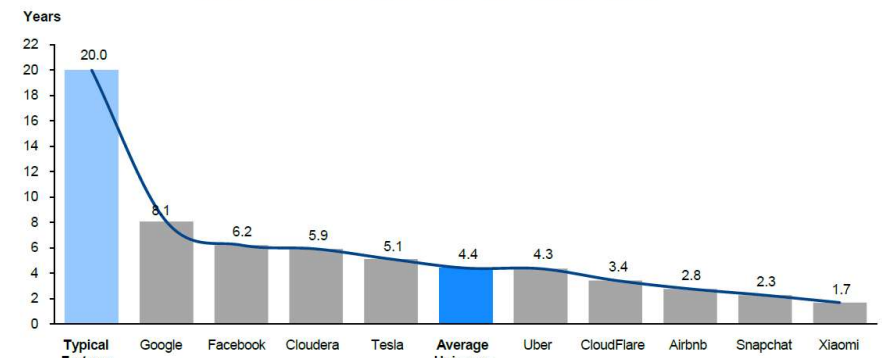
Market growth and Firm value - Illustration

THE INCREASINGLY CROWDED UNICORN CLUB:
PRIVATE COMPANIES VALUED AT \$1B+
as of 1/31/2017



Source: <https://www.cbinsights.com/research/increasingly-crowded-unicorn-club/>

Figure 2: Time to reach a valuation of \$1 billion or more



Source: Accenture

Source: World Economic Forum, Accenture. 2016 Report

Enterprise Essentials Class # 2

Class Summary



- The business environment is composed of industries and markets, i.e. institutional arrangements whereby firms interact in order to produce together goods and services (industries) and exchange them with customers against money (markets)
- Industries allow firms to interact, according to certain rules, in order to produce goods and services. There are several forces shaping industry structure, Michael Porter has identified 5 of them (industry rivalry, threat of new entrants, threat of substitutes, bargaining power of supplier, and bargaining power of end-users)
- Market mechanisms allow, in most cases, the desired allocation and equilibrium between supply and demand. In other instances government intervention, through regulation, is necessary
- Growth may be one of the criteria of the success of a business. However, company growth is a long journey and there are crises to be expected along the way

Thank You!

Valeriu Petrulian