Framework

In digital terms, Europe is lagging behind. While the American hegemony of GAFA was already total by the early 21st century, the rapid global development of Chinese digital companies has been impressive. Over the past few years, BATX (Baidu, Alibaba, Tencent, Xiaomi and their like) have been steadily gaining market share in numerous sectors, including e-commerce, videogames, connected objects and mobile telephony.

However, despite obvious economic opportunities and prospects for rapid growth, no European companies have managed to enduringly dominate the web market. While the European Union has seized on the idea of taxing GAFA, the very idea of competing with them is struggling to emerge.

How can the Europe's lost ground in digital terms be explained? Does the European Union lack a sufficiently ambitious policy? Is European digital independence a strategic issue? ***What kind of policies should be implemented: A more effective competition policy to help European champions emerge? A common bankruptcy resolution policy to foster innovation and the rapid turnover of start-ups? What role should public financing play? Is our educational system up to the task?***

The digital Europe:

What are the main issues?

- A lack of significant European digital players: a few key players like Spotify in Sweden, Deliveroo in the UK, OVH in France; market caps/insignificant valuation compared with those of the American GAFAM and NATU companies, and China's BATX (Baidu, Alibaba, Tencent, Xiaomi). In Europe, there have been abortive attempts to rival GAFA: in the search market with the search engine Qwant (market share in France: 0.6%), and in the Cloud with OVH (turnover forecast for 2020 of €1 billion compared with $18 billion for Amazon Web Services in 2017).
- The lack of a common, unified digital market: outdated, inadequate aid systems for innovation, fragmented markets for start-ups seeking to scale up (e.g. Bpi, whose excessive aids seem more like subsidies than anything else), chauvinism, the absence of a strong cultural link, and regulations that vary from one country to another.
- No leaders in future technologies: as regards the IoT, AI, deep learning, augmented and virtual reality and the quantum computer, Europe has already missed the new wave of AI technologies and is dominated by GAFAM and BATX. There have been a few attempts by players like Thales, Atos and SAP, but in a way, these only emphasise our archaism: GAFA did not emerge from IBM or Xerox. Europe needs to focus on the next breakthrough technologies if it one day hopes for a fighting chance to compete with the USA and China.
- Europeans dispossessed of their data… by these same players. As the controversial Laurent Alexandre has said, "Europe is the digital colony of the US; it exports all its data and massively imports AI." If this continues, GAFAM will become the AI providers (like electricity providers) and we the consumers.
- Financing innovation: simultaneously a smaller and larger problem. In the European VC environment, there are a few large funds like Idinvest, Index Ventures, Partech Ventures, and the Bpi – but none as big as the American funds (Andreesen Horowitz, General Atlantic, etc.). The smaller problem: when European start-ups face the problem of growth, they seek foreign investors (particularly American ones), set up directly in the USA (like Algolia, founded by the French but established in Delaware right from the start), and are then bought up by foreign players (Capitaine Train taken over by Trainline in the UK; Zenly bought by Snapchat for €250 million), and the same applies in Israel – not necessarily a problem in a globalised world.

1/ State of play:
Where are the technological innovations; where are the big digital players; which industries rapidly adopted or were disrupted by digital technology?

- Several indicators for measuring "technological dynamism": sizeable technology players (measured by their market capitalisation), the amounts raised with venture capital funds, investments in breakthrough technologies (the quantum computer, AI, machine learning, etc.).
- Undeniably, **the world's two leading regions are the US and China**, with GAFA and NATU (Netflix, AirBnB, Tesla, Uber) on the one hand, and BATX (Baidu, Alibaba, Tencent, Xiaomi) on the other. Europe is the digital diagonal void, wedged between these two poles of influence.
- **In the US:**
    - In 2001, only one of the world's top five largest market capitalisations was a technology company (Microsoft). Today, the top five places are entirely monopolised by technology players (Apple, Alphabet, Microsoft, Amazon and Tencent, the leading Chinese company). The proportion of the technology sector is greater than that of finance (3,582 billion in total market cap compared with 3,532 billion with finance, according to PwC). The top five technology valuations in the US have a higher value than the DAX-30. The average age of a NASDAQ company is 15 years; the average age of a CAC40 or DAX company 105 years.
    - In 2018, the accumulated revenues of the 10 biggest American technology market caps look set to be $1,000 billion.
    - The US continues to dominate global venture capital: according to KPMG, $46 billion were raised in the fourth quarter 2017, including $24 billion for the US (compared with $14 billion for China and only $6 billion in Europe)
    - Of the $26 to $39 billion invested in AI in 2016, $20 to $30 billion came from the digital giants (mainly US and Chinese).
- **In China**:
    - The past few years have seen the emergence of several technology giants, including two now in the top 10 market capitalisations: Tencent (the first Chinese company to reach a market cap of $500 billion, now in the top five, ahead of Facebook) and Alibaba.
    - Of the top 10 capital raises in Q4 2017, five were in China (including two raises of $4 billion with Didi Chuxing and Meituan-Dianping); three out of the top five private valuations were also in China (1. Uber 2. Didi Chuxing 3. Xiaomi 4. China Internet Plus Holding (Meituan Dianping) 5. AirBnB: the only American)
- **In Europe**:
    - Some impressive successes: Spotify in Sweden; Deliveroo in the UK; Delivery Hero and Auto1 in Germany; Adyen in the Netherlands; Transferwise (UK); OVH/Criteo in France. Some fine European exits in the past: Mojang AB (the videogame "Minecraft") acquired by Microsoft for $2.5 billion; Skype bought by eBay for $2.6 billion; Criteo floated on the NASDAQ.
    - The same R&D expenditure as in China (in 2015, 2% of the GDP was devoted to R&D, but 2.8% in the US)
    - ***In July 2015, only 8% of global unicorns were European, compared with 67% American and 25% Asian***
- **The industries that adopted new technologies or went digital most rapidly**: wherever routine tasks are involved (e.g. driverless distribution trucks that always do the same journeys, or machines used with farm crops, will take over more quickly than driverless cars; radiology, etc.)

- **Everything that can be transposed into apps, has a distribution chain or is routine.** The ICT sector is on the bleeding edge, closely followed by finance and media, but the traditional sectors are lagging.
    - Telecoms: notably with the arrival of chat apps like Messenger and WeChat, which are "over-the-top applications" that use the 3G/4G supplied by operators. The latter lost their lucrative revenues from SMS plans within a few years. They are trying to fight back and regain control with the RCS (Rich Communication System) to replace the SMS, but so far without success.
    - Cultural property: particularly music, with CD sales plummeting and the massive adoption of streaming (Spotify, Deezer). There has been a changeover from ownership to use, and this revolution will soon apply to daily transport (Uber's massive investment in driverless cars in order to become the manager of autonomous fleets and eventually replace drivers)
    - Photography: the famous Kodak effect
    - Commerce and distribution: the massive arrival of e-commerce (particularly Amazon, but also Price Minister, etc.) is forcing conventional players to transform (Amazon bought up WholeFoods last year and is opening its Amazon Go store; Carrefour appointed Alexandre Bompard as CEO to speed up its digital transformation). Postal distribution as well (the volume of letters is falling 5% each year in France; an overhaul of La Poste is under way)
    - Banks: A forced-march transformation with the arrival of FinTech and above all neo-banks like N26 in Germany, and Revolut in the UK)/forex with Transferwise (UK: 280 million, valuation 1.6 billion; Adyen's IPO: 13 billion in the Netherlands); the distribution taboo now broken, with the closure of numerous branches and agencies everywhere in Europe, particularly in France. The industrialisation of tasks in asset management and market finance.

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2/ What are the **obstacles in Europe** to these three areas (innovation, adoption, growth)?
Finances? Regulations? Education? Rigid attitudes? Lack of European standards, apart from data protection?

- Europe has genuine assets: world-class universities; excellent researchers; fine engineers; an increasingly effective innovation ecosystem. But there are no major European players in the latest technology waves (smartphones, social media, chat, AI). And yet, Europe has the highest number of the 100 leading AI research centres.
- There is a gap between northern Europe and southern Europe: there are plenty of ideas and start-ups in the north (see above); fewer in the south.
- Link between research/business: a mass exodus of excellent researchers and engineers to the US, or recruited at high salaries by American companies (e.g. Yann LeCun at Facebook): the culture of transferring research (pure) to business (impure) could be a reason in certain countries like France.
- No shared digital market/fragmented digital markets: it is difficult to upscale European unicorns compared with American or Chinese unicorns; no continental market unified by a common culture, tax system or sector laws. To upscale in the American market, one market has to be conquered; to upscale in Europe, 28 different markets need to be conquered, all with different languages, regulations, etc.
- Different regulatory/legal systems: American common law is better for rapidly adapting law texts to technological progress vs. Europe's more rigid Roman law. Financing American electoral campaigns also helps technology players. Democrats and Republicans alike are increasingly financed by Silicon Valley players. Their interests are thus preserved by the public authority.

- Not the right culture: a hierarchic and rigid culture; an emphasis on studies rather than a track record; little culture of failure (in opinion surveys, Europeans are less willing to fail); aversion to risk.

3/ Is it too late? Where can Europe make inroads? What is the role of States – the European Commission –investors – businesses?
If it is too late to become a producer, how can we leverage adoption and adaptation?

- Three possible models: an American model driven by private players who impose their values on the community; a Chinese model focused on gathering of immense quantities of private data from citizens; an Israeli/northern European model – and could the latter be the European model, which respects citizens' rights?
- **Policy of the European Commission: a weak policy as regards innovation and the single/common digital market; a more aggressive one as regards sanctions and regulation – too protectionist when it involves embracing already existing innovations?**
    - Numerous programmes exist. The common digital market: in 2015, the ambition was to achieve the equivalent of $500 billion in value for the European economy and 4 million jobs by the end of 2016. Horizon 2020: European financing systems Horizon 2020 was designed to subsidise players implementing an R&D programme. Provision of a budget of €76 billion over the 2014-2020 period, including €3 billion (i.e. 4% of the overall budget) specifically for SMEs ("the SME Instrument"). For many reasons (the complexity of the programme, excessive selectivity, an over-basic, top-down R&D approach), this programme has been a failure. Budget 2021-2027: proposal of a **digital programme for Europe** of €9.2 billion, including €2.7 billion for high-performance computing (HPC; supercomputer) and data processing, €2.5 billion for AI, €2 billion for cyberdefence, €1.3 billion in the "digitalisation of all sectors" (including SMEs) and €0.7 billion for professional training. On top of that, €3 billion are also planned for interconnection (very high speed). Not clear, but the effort is probably insufficient.
- Europe has a chance to promote international digital standards to achieve the highest level of well-being for citizens, including for **the organisation of data collection**

Is this "macro", or top-down, approach the right one?

- The role of States:
    - Development of venture capital: like the French example, Bpi France, or the new €10 billion breakthrough innovation fund desired by the French President.
    - National labels: the relative success of French Tech in promoting French start-ups.
    - European regulation to remove obstacles:

- **The role of companies**: investment in technology, the creation of innovation ecosystems, increasingly large corporate VC. Possibility of working as sectors, to rival the external giants. Are our European anti-trust laws too strict, given the need to create European giants? Idea of creating a European Vision Fund (SoftBank funds: $100 billion) by a consortium of financial players (banks + insurance companies)?
- The role of investors: reorientation of European savings towards innovation and risk. In the main European countries (particularly France and Germany), savers are averse to risk, preferring to put their money into safe products (life assurance, non-taxable savings accounts) rather than shares, SMEs or non-listed companies – *and also perhaps because performance has not been positive*. Very little incentive for institutional investment.

- A few possible solutions:
    - ***Education and training***: opening out to private initiatives – massive corporate investment (particularly R&D budgets) in professional training and the development of new skills for everyone, with players like OpenClassrooms, particularly to train the most vulnerable. A goal: that 80% of young people in Europe will be able to code by 2030 (model: Estonia's partnership with Codeacademy.com)? Developing the "42" education programme further on a non-hierarchical model, so as to have "hacker" engineers who remain in Europe or are headhunted by foreign technology companies to work in their labs.
    - ***Investment/financing*** to enable investors to create European funds in any country, in a simple, standard way; to develop European savings products orienting savings towards risk and innovation (which is what Macron is trying to do in France); to simplify conditions for support from the European Investment Bank and public investment banks in order to support innovation and initiatives like JEDI (a European form of DARPA) and rapidly develop breakthrough technology prototypes. The spread/expansion of French breakthrough funds to other countries, enabling foreign investors to enter?
    - ***Bankruptcy regulation*** and laws: it cannot be sufficiently stressed that "national gold plating" should be avoided, and that work is still needed to improve, simplify and decriminalise bankruptcy laws.
    - ***Taking advantage of European elections to act: particularly discussions on the European budget*** = less CAP; more innovation and research in the technologies of the future. Trying to instil a spirit of growth (not of systematic regulation) in the next commission. In terms of regulations, obstacles to a unified digital market should be removed (for the mobility of talents, financing, establishment in a new market, etc.)
    - A chance for the euro zone: easier to start with 19 than with 28. Innovation could be the priority of the future euro zone budget.

4/ Ideas for **questions/main lines for discussion**:

- Could the recent difficulties encountered by GAFA, particularly Facebook, offer Europe a chance to relaunch itself? Can a third, European path be envisaged between the US and China?
- The US was the forerunner in building technological giants, and then created a new wave of players with colossal financing (compare capital raising in the US and Europe). In China, it was by raising a technological Great Wall supporting innovation at a forced rate, regulating (or not regulating) after the event, and profiting from a self-sufficient market of hundreds of millions of consumers that the country became a leader in the space of 10 years. What solution is there for Europe: digital protectionism to drive AI production, or facilitated entry to accelerate the adoption of new technologies?
- President Macron's aim is to create a European AI centre of excellence and yet his announcements have been national (€1.5 billion of investment during his five-year presidency) and largely insufficient given the striking power of GAFA/BATX. Is this the right approach?
- Rather than wanting to create European GAFAs, why not use American and Chinese technology to accelerate our digital transformation?
- The digitalisation of European states: the case of Estonia, a pertinent model of a platform state? (Tiger Leap digitalisation project beginning in 1996, e-citizenship, digital platform for voting and viewing health records, e-residence programme, etc.)
- The Israeli approach: creation of technology ecosystems (which they did 20 years ago, starting from scratch).