"It's all about data," wrote Chris Chapman, president of the IIC, in Intermedia this year. And every day passed in the digital ecosystem shows how true this is for the future of communications. According to the IDC Data Age 2025 forecast, in the next 6 years the volume of data created in the "datasphere" is expected to increase by five times.

Beside volume, two other two v's – velocity and variety – will shape the nature of the datasphere in the near future, changing the nature of products and services exchanged in the digital ecosystem as well as the structure of digital markets, raising new trade-offs and dilemmas for regulators and policymakers.

As the digital ecosystem becomes fundamentally driven by datasphere growth, traditional value chains and vertical organisations in the communications industry will be rapidly transformed. Their role will be redesigned in terms of producer and/or recipient of data, while algorithm-driven platforms will take centre stage, with data exchange at the core of economic transactions involving multisided markets.

The 5G revolution, with the increase of IoT and M2M connections, will further reveal that data is king – the economic product which creates value in the new digital product cycle for "matchmaker" platforms, online advertisers, and so on.

As with any revolution, the emergence of the datasphere society generates important challenges for regulators and policymakers. The efficiency of platforms increases due to network effects and the value of data collected, which in turn improves the efficiency of algorithms and consumers' welfare (in terms of reducing transaction costs). Thus, for a platform to be efficient, the expansion of the service's scope and the extension of the markets served will be a natural evolutionary process, aimed at capturing a consumer's attention and time under the promise of satisfying all their needs, through the platform’s gatekeeper role.

As a consequence, under business as usual, i.e. absent any focused regulatory action, the spontaneous evolution of market forces will lead soon to structural changes in the traditional (and often locally based) vertical industry dynamics, inducing competition among (few) platforms for (many) global markets.

OPEN ISSUES

This ongoing process has already raised many policy questions, sometimes driven by partisan attitudes that are pro or anti platforms: do we care about this paradigmatic shift from traditional to digital (platform based) capitalism? Shall we apply traditional antitrust criteria and regulatory approaches to digital platforms, and their dominance over well-defined relevant product markets? Shall we instead change our perspective, given the benefits to consumers, who often pay lower (or even zero) prices for products and services implicitly exchanged for “attention”? Shall we consider big data a new entry barrier for many digital markets? Shall we consider inalienability rules for privacy of personal data, or shall we build (and stimulate) a competitive market for data, even by defining clear property rights on our own data ("propertisation")?

The debate is open, and answers are complex as they entail many interdisciplinary dimensions at the intersection between antitrust, privacy and communications regulation. One of the main points behind the debate concerns the relationships between platforms, big data and algorithms, as the value and impact of big data cannot be properly
assessed without taking into account the business model of the digital platforms (including the apps downloaded by internet users), which is based on the value and impact of algorithms. Machine learning processes require a large amount of data to improve their performance. This is the main reason why efficient platforms need a large amount of big data to improve their algorithms and implicitly exchange (zero priced) services for users’ data. Moreover, the efficiency of algorithms improves the matchmaking performance of the platforms over multisided markets, offering users “what they want”, but also helping programmatic advertisers to properly reach a segmented and profiled audience.

The economic challenge here is how to provide good and efficient governance of the transition between the old and the new world. The laissez-faire approach to platforms simply suggests that the evolution of digital capitalism should be governed by new (very light) rules. This means abandoning old paradigms (such as notions of dominance, market power, relevant market, monopolisation and so on) that would otherwise affect platforms at their core, as they would treat as “behaviour” what is, after all, just a business model performing both allocative and distributive efficiency – as consumers obtain a larger amount of services (included many traditional services offered by non-platform providers) at lower costs.

On the opposite side, a prudent approach – often supported by firms and unions belonging to the incumbent traditional industries – highlights the “new nirvana” of platform-based capitalism on the basis of the hidden social costs in terms of monopolisation and “monopsonisation” of affected markets (included the job market), generated by these new global intermediaries, thanks to their ability to gather, control and exclusively use personal data.

I will not choose here between the two approaches, but discuss some pervasive puzzles about the laissez-faire approach to platforms.

ECONOMIC NOTIONS

The tension between the two approaches can be summarised in terms of the economic notion of “externality”, i.e. of the indirect effect generated by production or consumption that does not pass through an explicit market exchange. Platforms manage and enjoy positive externalities, such as the voluntary “implicit” exchange of personal data by platform users. However, platforms also generate negative externalities on many traditional industries, demand for which is actually redirected towards the platforms’ (zero) priced services. By intermediating among many sided markets, matchmaking by platforms is able to extract a large amount of (informational) rents from any side. This means that platforms increase efficiency but also keep for themselves a large portion of the rents extracted from participants to the multisided markets intermediated by them.

As a consequence, this “structural efficiency” of platforms raises puzzles over the laissez-faire approach. Laissez-faire policies are generally based on the classical idea that free markets perform well and better compared with other (governmental or privately based) hierarchical or command-and-control institutions. However, this is possible because free markets – according to fathers of the free market paradigm such as Adam Smith and Friedrich Hayek – allow strong competition among participants, and, in turn, this is the result of economic agents publicly revealing their private information. Under well-functioning markets information is free, accessible and “observable” to all. On the contrary, in platform-based capitalism, “revealed” information is privately kept by the matchmaker in the form of big data and, moreover, this is precisely the source of a platform’s competitive advantage over competitors. So, how is it possible for the laissez-faire approach to reconcile, under a unified framework, the benefits of free markets with the emergence of platforms, whose main feature is preserving the gathered private information from being publicly revealed?

A second pillar of the laissez-faire approach is the central role of freedom to choose in enabling the mechanism of market competition. However, the hidden side of platforms’ network effects (which means that the benefit to consumers of being on a platform grows as long as the platform increases its dimension) is that they also constitute consumers’ opportunity costs to switch platforms. That means, in turn, that platform capitalism may weaken consumers’ incentives to switch, thus inhibiting one of the central mechanism of competition in free markets. Again, how is it possible for the laissez-faire approach to reconcile, under a unified framework, the benefits of free markets with the emergence of significant exit costs on platform users?

INFORMATION AS A PUBLIC GOOD IN THE FREE MARKET PARADIGM

To properly understand the value of big data in digital capitalism, a step back is needed into our understanding of the value and role of information as an economic good in well-functioning (or perfectly competitive) markets.9 Information is, on the one side, an essential input for well-functioning markets and, on the other, it is their worthy outcome. Markets are efficient (relative to any alternative institution) when they are able to convey dispersed information, on both the supply and demand sides, into “public” signals such as price and quantity, that reduce search costs and allow the optimal allocation of economic resources. As a consequence, markets’ (allocative) efficiency relies on the value of the information publicly released.

The information is an economic good and, moreover, in well-functioning markets it is a public good, being non-excludable and non-rivalrous in consumption, thus freely accessible. When information is private, or asymmetric, a market failure does emerge, leading to so-called agency problems, namely moral hazard and adverse selection: the market fails in performing its...
capitalism has to be coupled with competition for (being) the market, rather than with competition in the market. This is not entirely new. In classical economic theory, Adam Smith and Léon Walras named, respectively, the Invisible Hand and the Auctioneer as the ideal matchmaker allowing dispersed information in the market to meet in equilibrium between demand and supply at selling prices equal to marginal costs of production. However, both were fictitious intermediaries – “as if” metaphors designed to explain the functioning of the markets when dispersed private information comes to be public thanks to the mechanism of free competition. On the contrary, platforms are matchmakers that privately hold the information they gather and do not share this information with rivals or “anonymous strangers” in the market. This is a paradox to the extent to which the emergence of platforms is generally depicted as a natural consequence of market competition in the digital ecosystem: platforms emerging in free markets, indeed, generate a fundamental transformation in the nature and role of knowledge and information through the “privatisation” of big data extracted from users. Dynamic efficiency here is thus coupled with evolution towards monopolisation. Interestingly, this kind of monopolisation is not the result of having success in the market, but of a precise strategy of the platform concerning the (privately efficient) exclusive use of the information gathered through big data extraction.

Moreover, when the platform’s informational rents refer to exclusive use of big data, gathered by the platform and due to the dimension of the platform, this process generates scarcity in access to relevant information. Then big data could, in principle, be envisaged as an essential facility whose access is necessary to enter the relevant markets.19

However, the process of monopolisation by a digital platform, on the other hand, does not necessarily mean that competition is out, for two main reasons. First, because competition might be “a click away”, as drastic innovation may substitute existing platforms with new entrants, as happened with Yahoo versus Google or Nokia versus Apple and Samsung, and so on. Second, because some kind of big data (so-called structured data) could be easily replaced by alternative and competing platforms, so that the platform’s informational rents generated by cumulating exclusive big data could easily vanish. Thus, in this case, one should ask whether the competitive advantage of the platform relies on having exclusive access to “scarce” big data or on being able, through the development of powerful algorithms, to use big data efficiently even when it is easy to replace. Nonetheless, even when easily replaceable, privately held big data could constitute a barrier to entry in some other circumstances, increasing

**Big data could be envisaged as an essential facility necessary to enter markets.**

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1. www.iicom.org
the opportunity cost for switching platforms. In these cases, the barriers to entry are the users’ exit costs, in terms of opportunity costs to leave the old platform for the new one. The bigger the platform, the higher would be the opportunity costs to leave it (i.e. in terms of losing the positive network externalities present in the incumbent platform).

This means, in turn, that the dimension of the existing platform plays a role also on the demand side. As the efficiency of algorithms depends on the dimension of big data treated, the combination of privately held big data, dimension of the platform and network externalities may ensure the enduring persistence of a platform against new entrants’ competitive challenge, because of demand’s inertia in switching platforms, together with the users’ coordination costs needed to efficiently switch.11

**USERS’ EXIT COSTS AND INFORMATIONAL AFTERMARKETS**

A second efficiency paradox is the platform’s ability to make discrimination strategies (price and non-price), thanks to user profiling from data extraction, while weakening consumers’ freedom to choose.

Standard microeconomic theory suggests that there are forms of discrimination that increase allocative efficiency, because they enable consumption of goods and services by consumers willing to pay not less than the marginal cost of production. This also applies to indirect forms of discrimination that take place through bundling of services and products, at least in those cases where consumer preferences are negatively correlated for services and products, together with the users’ coordination costs needed to efficiently switch.11

**THE ROLE OF DATA PORTABILITY**

Two possible exit strategies against the above risks are big data access and sharing, and consumers’ management of property rights over their own data. The first strategy is hampered by the fact that it seems quite complex to define big data as an essential facility tout court.

The second strategy has gained strong support in the General Data Protection Regulation (GDPR) in Europe. The EU data protection legal framework ensures that personal data can only be gathered under strict conditions and for legitimate purposes and are protected from misuse. In particular, personal data must be:

**It is impossible to know if the digital capitalism black hole will come true or not.**

This means that perfect profiling powered by consumers’ inertia and behavioural biases fosters laziness, along with the paradox that the digital world of search becomes its opposite and creates happy and inert consumers.

Under an informational aftermarket, consumers continue to choose freely, but by means of customised menus and within the platform environment. It is true that these menus might be the “best choice” for the consumer (as the platform “knows” what the user wants). Nonetheless, under customisation, the degree of comparability among platforms by the user may get increasingly difficult. The paradox here is that a platform’s efficiency may well satisfy a final user who lacks ability and even a chance to exert free choice among alternatives. If this is true, platform efficiency in profiling may generate the “end of the markets” and of competition dynamics, which will be replaced by a cluster powered by consumers’ informational capture.

Of course, this might be a rather bleak picture, in which there is no room for disruptive innovations generated by competitive pressure, resulting in a limitation of the dominant positions. However, the point is that the magnitude of this potential outcome may depend on the degree of informational capture and the actual constraints to the consumers’ rational and free choice among alternatives. The universe of markets, under this vision, sooner or later may fall into small star systems in which the consumers will only be able to observe orbits very close around them, exercising their “free” choice but only in a non-market context.

Today it is impossible to know if the prophecy of traditional markets, swallowed up by the digital capitalism black hole will come true or not. The risk of informational capture, under exclusive use of big data, and the creation of informational aftermarkets, raise significant issues in this respect. A lateral paradox is that some privacy rules, as long as they increase transaction costs over the development of a free market for big data, may even exacerbate the above risks, by compelling the platform to make exclusive use of the big data gathered from users (i.e. not to share with third parties).
In particular, an econometric analysis on the apps available in Google Play reveals that there is a statistically significant negative relationship between the number of privacy licences signed by users on the use of their data by an app, and the price users are willing to pay for downloading the app. At the same time, on the supply side, app producers and sellers fix the price of an app on the basis of the number of licences they require users to sign. As a consequence, even if — according to a survey conducted by Agcom — only 60% of users are actually aware of the implicit exchange of personal data when they download apps or have access to a digital platform, there is a market value behind the implicit exchange of personal data against digital services and products.

Policymakers and regulators will need to make it explicit to consumers and platform users that there is a market for personal data, that the consumer may decide how to sell this data and to whom, using this bargaining power also as a mechanism to enhance competition among platforms. Data portability, in this respect, is one first step in the right direction.

CONCLUSIONS

Platform capitalism is based on exclusive access to big data and on platforms’ ability to capture final users through efficient algorithmic profiling. “It’s all about data”, but as platforms’ efficiency and barriers to entry both grow with platforms’ dimension, regulators and policymakers will raise the issue of dynamic efficiency in a world where information is not anymore a public good in open markets and where consumers’ inertia reduces incentives to switch platforms.

The debate is open and the increasing awareness of the implicit value of personal data — as shown by Agcom’s interim report — reveals that new policy approaches are starting from consumers’ empowerment over the use and sale of their own data.

Placing the platform user at the centre of the digital transaction on their own data implies giving centrality also to the issue of the appropriability and portability of the profiled data. This would enable the user’s ability to recover their own bargaining and contractual power towards the platform, by participating in the profitability generated by the digital transactions.

In turn, data ownership and portability, on the consumer’s side, strengthen a user’s freedom to choose among alternative platforms, while reducing the competitive advantage of the exclusive access to big data by the incumbent platforms.

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REFERENCES

Key points of the proposal are:
• The application of privacy rules to new players providing electronic communications services (e.g. WhatsApp, Facebook Messenger and Skype)
• Privacy is guaranteed for communications content and metadata, e.g. time of a call and location, which must be kept in an anonymous form or deleted if users did not give their consent
• Simplification/streamlining of rules on cookies
• Protection against unsolicited communications (spam), e.g. by default or using a do-not-call list; marketing callers need to be identifiable
• The enforcement of the confidentiality rules will be the responsibility of data protection authorities already in charge of the rules under the GDPR.
• One of the main novelties regards the user’s right to the portability of their own data when switching provider. The real impact of this measure needs to be tested, but it constitutes a principle that goes in the right direction of:
  • Defining property rights on personal data (protected by property rules)
  • Setting new default rules in digital transactions, by re-directing bargaining power over data use in favour of a platform’s users,
  • Allowing an effective freedom to choose on users’ platforms
  • Restoring, through freedom to choose, a degree of workable competition among platforms.

THE (PRIVATE) VALUE OF BIG DATA: THE AGCOM INTERIM REPORT

Data portability works well when a competitive market for big data is well-functioning. One of the main conditions for a market to work is to have well-defined property rights, high transparency and publicly revealed information. Economic agents should be aware of what they exchange and about the value of what is exchanged.

But what are the private and market values of personal data? An answer comes from a joint enquiry on big data in Italy that has the aim of identifying the vast array of trade-offs and regulatory dilemmas surrounding big data management, by the communications authority (Agcom), the competition authority (AGCM) and the privacy authority (Garante per la protezione dei dati personali). The final report is expected at the end of 2018, but Agcom’s interim report, released in June 2018, unveils some remarkable findings about the economic value of big data.