Competition for the Effectiveness of Big Data Benefits

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The term Big Data refers to data sets whose size is beyond the capacity of a traditional tool database to capture, store, manage and analyze. It represents the next frontier in innovation, competition and productivity. With respect to such a large volume of data in many varieties and moving at such speed, the traditional tools of capture and analysis are insufficient or economically unviable. Characterized commonly by the 3Vs: *volume* (great volume), *variety* (various modalities, types of data) and *velocity* (rapid generation, processing of data), over time, other Vs have come to characterize Big Data: *value*, *veracity* and *validation*. Ultimately, Big Data can be characterized by 6Vs.

In competitive terms, Big Data can be understood as the ability to collect, process and analyze large volumes and a wide range of data in a sufficient period of time to obtain information giving the holder the ability to establish business strategies and, in some situations comprising an essential facility, market power and even a dominant position to unilaterally interfere in the functioning of the market.

As observed by the Organization for Economic Cooperation and Development (OECD) in its report *The Digital Economy* (2012; p. 5), competition in digital markets has its own characteristics, including trends such as “winner takes all”, network effects, two-sided markets, the fast pace of innovation and high investment amounts. The cyclical nature of such competition means that successful digital platforms tend to acquire significant market power, however transitory. The digital economy is also characterized by, and essentially is, dynamic competition based on continuous cycles of innovation, development and ruptures.

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Big Data as a technological phenomenon, along with its wide variety of potential uses for the analysis of large volumes of data, demands reflection on the effectiveness of current laws and ethical social standards to protect privacy, ensure competition and consumer welfare.

By analyzing Big Data for competitive purposes, one ends up getting into issues related to consumer and data protection. This means, the answers to issues related to Big Data with regard to free competition, consumer and data protection can be given as a set.

In response to the growing threat to data security, especially concerning private data protection, new laws or projects of laws to ensure the protection of citizens have emerged in different jurisdictions around the world. Firms involved in the capture, analysis, processing or transfer of such data are, or will be, required to respect and comply with such legislation. Thus, companies should be well structured with areas of compliance in the various jurisdictions in which they operate in order to perform their activities in accordance with a proliferation of laws and rights.

From the citizen's perspective, as consumers, data is to be protected in order to ensure its privacy. However, in a competitive environment, data protection and privacy should also be dealt with from a business point of view. In this regard, a significant amount of companies' sensitive information should be protected, above all to ensure free competition. Included among such sensitive business information is: (i) information related to private enterprise, such as financial reports, marketing strategies, new products and lists of customers or suppliers; and (ii) intellectual property rights such as trademarks and patents, formulas, source code software, business strategies and trade secrets.

The implementation by companies of information security measures for data protection also benefits their asset protection, ensures compliance with legislation, benefits the reputation of the company's image and reduces administrative, civil and even criminal liabilities.

Concerning data protection, the acronym "CIA" describes the areas which must be addressed in order to obtain the benefits of its implementation. "C" refers to *confidentiality*: data is protected from being accessed or opened without authorization. "I" stands for *integrity*: data is true and has not been modified. Finally, "A" stands for *availability*: data is available to be accessed and used when requested, respecting previously established rules of access and use.

Just as personal data privacy and protection are guarantees for individuals, these are also issues of public interest. Therefore, it is imperative that the interaction between civil society, governments, organizations and companies works for the development of competition policy, consumer welfare and data protection in order to benefit and boost the effectiveness of the application of free competition rules and the development of services to enhance privacy and minimize damage to consumer welfare. Moreover, in the digital economy, personal information (data) is a tremendous intangible asset, in addition to often being the currency used to access online services.

In the digital information age, interestingly many of these services are "free", so that the individual user does not have to "pay for them", i.e. expend financial resources to have access to such services. But there is, in fact, no "free lunch", and

the individual pays a huge price for these services – and often loses in this trade-off. The payment that the individual usually hands over for access to “free” services is delivery of his personal information, thus exposing his privacy. This is the “currency”, the “price to pay” for “free” services. The situation, however, is more critical than imagined.

Through various digital services such as e-mail, search engines and social networks, utilized by most Internet users, companies promote the perception that all these services are provided free of charge to any individual wanting to use them. Moreover, even if a user wished to pay with financial resources for the use of such a service, he or she cannot because they are hypothetically “free”. The gratuity is, however, a decoy. In accepting this generosity, the individual provides valuable personal information making him or her a potential target directly reachable by the accuracy of Big Data systems.

The analysis of this trade-off, nevertheless, is even more complex. In the age of digital information, individuals are interconnected via the Internet. The network therefore includes individuals who become part of a global community without borders. To be part of this community, as a rule, the individual must interconnect with other individuals who use e-mail, social networks, applications, and often the only currency accepted by the providers of these services is the individual’s personal information.

There is a vast, worldwide debate about consumer and data protection. If the scope of this discussion is focused only on the consumer, the issue will remain limited to a shortsighted solution. The debate should be concerned with consumer welfare, especially with the competitive bias once the economic concentration, as a rule, limits the agents that compete in the market, thus making consumers vulnerable. Consumers are involved in the network effect where, on the one hand, the more users there are of an Internet service, the more this service becomes attractive to connect people, and on the other hand, the consumer ends up bound to adhere to this service, subsuming to the demands or compensations imposed by the firm, otherwise he or she will be locked out of the network, and out of the world.

This economic concentration, especially when it concerns two-sided markets or even multi-platforms, also directly impacts competition from smaller players who, due to information asymmetry, can hardly compete with agents operating on different levels of the market and processing Big Data in their favor.

In the era of Big Data, the benefits brought by this revolution will only be beneficial to the consumer through the implementation of data protection measures, but especially with the existence of a necessarily competitive environment where free competition will be able to restrain any abuses of economic power.