

Giulia Schneider

Giulia Schneider is a second year PhD Student at Bocconi University, where she is carrying out a research project focusing on the regulation of digital health markets. She graduated from Sant'Anna School of Advanced Studies in Pisa where she was awarded a 5 years merit based scholarship from the Italian Ministry of University and Research to attend the undergraduate program in law at Sant'Anna School of Advanced studies held in conjunction with the University of Pisa. She graduated cum laude in April 2016 at the University of Pisa discussing a final thesis under supervision of Prof. G. Comandè' (Full Professor of Comparative Law at Sant'Anna School of Advanced Studies) regarding current intellectual property issues in the European pharmaceutical market.

Since March 2014 she is assistant researcher at the Lider Lab Research Institute at the Sant'Anna School of Advanced Studies and member of the editorial staff of the peer-reviewed open Access Journal *Opinio Juris* in comparative- Studies in comparative and national law.

As an undergraduate student she was awarded several bursaries for research stays at LSE (London), ENS (Paris) and Max Plack Institute for Innovation and Competition (Munich).

In May 2016 she started practicing as a Lawyer at the law firm Studio Abriani in Florence, focusing mainly on corporate law and intellectual property.

In July 2017 she graduated cum laude from the Sant'Anna School of Advanced Studies. She published various papers in peer-reviewed Journals and presented her research findings in various International Conferences such as the International Health Policy Conference held at LSE or the Tilburg Conference Tilting 2017 "Regulating a connected World"; and in several Workshops both at Sant'Anna School of Advanced Studies and Bocconi University.

Making Healthcare a Digital Business: Regulatory Paths for the Algorithmic Health Industry

Data-driven tools and machine-learning methods are changing the face of healthcare systems and services. Algorithmic analytics are revolutionising healthcare and pharmaceutical research along the lines of an outright datification process.

Such process is mainly driven by the increasing involvement of high-tech corporations in the healthcare sector. With the rising importance of undertakings that make of healthcare services delivery just one field of action of their multi-sided platforms, it seems that the healthcare sector is progressively being captured by commercially-oriented stakeholders. The massive presence of digital giants in health research is thus sensitively altering the structural traits of the global healthcare industry.

The moving assumption of the study is that the involvement of big data companies in the delivery of healthcare services enables them to engage in a massive collection of health-inflected data, not only from users but also from other companies, such as pharmaceutical companies, and public institutions. Two recent cases respectively involving Google Deep mind and the English National Health System, and IBM and the Italian government, prove such a scenario.

The legal pitfalls of this phenomenon have not yet been properly explored. This study aims at filling this gap and detects the regulatory paths for the emerging algorithmic health industry.

The first section thus enquires the increasing attention given by big data companies to so called body-based markets. The large collection of health data by digital companies calls for a reassessment of current applicable health data ownership rules. This is ever more urgent given the development, over the last years, of an over-protectionist regulatory framework regarding competitively sensitive information. As generally observed by scholarly literature, the intellectual property framework has indeed taken on a new control and secretization task that needs a deeper enquiry with regards its implications in the current digital health space. Secondly, the increasing involvement of digital companies in the health industry is amplifying the threats to the protection of data subjects' personal data. As a response to this, the new tools introduced by the GDPR, as the right to be forgotten, the right to explanation and the Data Impact Assessment, are of extreme interest for the creation of a more transparent health research environment. If well implemented, these tools are able to increase not only data subjects' awareness of the processing of ongoing processing activities, but also the knowledge of competitors to the ultimate benefit of competition mechanisms' and thus of patients' welfare.

Shifting the focus from body-based markets back to web-based markets, the second section enquires the competitive fallouts of the above traced scenario: the massive availability of extremely sensitive data in the hands of digital companies requires also an assessment of the reflexes over competition equilibria in both *a*) healthcare-related markets and *b*) non-healthcare related markets. Ultimately, general conclusions will follow with regards the need to reframe the borders of the notions of health research and health services in the evolving algorithmic health industry.