

Call for papers – Thematic issue – 2nd semester 2023

Organization strategies and open digital paradigm: open source, open data, open standardization and related intellectual property

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Connection and filiation between open source, open data, open standardization and importance of intellectual property

The sectors of open source, open data and open standardization are linked by key elements of filiation and connectivity. In particular, intellectual property, formalized in user licenses, plays a crucial role in establishing and maintaining openness. At the heart of this thematic issue of the journal "Market & Organizations", the research field concerning these elements aims to advance involved strategies of organizations (public and private), notably through the wealth of implemented combinations and synergies.

Open data, building on open source, and centrality of IPR

Open data considers digital data whose access and use are freely open to anyone, according to the terms of associated user licenses. The legal terms of these licenses serve to ensure an unbiased opening of these data (non-discrimination regarding to technical and financial criteria, and purpose of use). They also allow to maintain the characteristics of openness as data are disseminated. The structuring of IPR (intellectual property rights) for open data is based on a subsidiary analogy with open source. Indeed, the Open Knowledge Foundation, a non-profit association that pioneered open data, published a definition of open data in 2005 directly inspired by the open source one of 1998 (Raymond, 1999).

Open source at the forefront of the "*revolution of the conventional innovation process*" and extreme case of open innovation

Open source is based on the open contribution from any agent (organization, individual) wishing to participate in the development of computer software. To this end, the source code of the software is freely available, according to the terms of its license. The vectors of high potential cooperation of open source, shaping its advent, are Internet and an organized support of contributions. Thus, a community dynamic of development could be established without constraints of synchronicity, neither horizontal limits of participation. Open source is thus considered by Gassmann and Enkel (2004) as "*the most prominent example of the revolution of the conventional innovation process*". In this perspective, open source is described by Jullien and Zimmermann (2009) as an extreme case of open innovation. The constitutive

proximity between open data and open source builds in particular on the filiation of these movements with the paradigm of open innovation, highlighted by Chesbrough (2006).

Open source and open data integrated in the field of open innovation 2.0

In particular, open source and open data are part of the field of open innovation specific to the digital sector, to the densification of networks and to the new possibilities of data processing linked to IT. The importance of this development has led the academic sector of management of innovation to characterizing this field as open innovation 2.0 (Jullien, Penin, 2014; Rayna, Striukova, 2015). The "2.0" suffix highlights the analogy with the Web 2.0, an evolution of the World Wide Web, marked by a significant enhancement of interactivity, usability, and exchange possibilities.

Synergies between open source, open data, open standardization and IPR highlighted by Tim Berners-Lee

Personifying the confluence of open source, open data, open standardization and IPR, Sir Tim Berners-Lee, the main architect of the Web. In order to perpetuate the evolution of these technologies as open standards, Tim Berners-Lee founded in 2004 the W3C (World Wide Web Consortium), an international non-profit organization of open standardization. Historically, the shaping of telecommunication standards has been the matrix for open movements, even before the emergence of open source (Russell, 2014). Open standardization allows an optimal generation of interoperability between devices and the formatting of data to make their processing automatable, while allowing free implementation of open standards by any protagonist. Building his project on the complementarities between open standardization and open source, Tim Berners-Lee led the consortium with the objective of promoting the possibility of open source implementation of his standards. To this end, IPR management has been central and the consortium only admitted royalty-free implementation licenses in case of unavoidable patents as "*Patent Essential to a Standard*" type (Baudry, Dumont, 2018). Even outside FRAND (Fair, Reasonable And Non Discriminatory) terms allowed by most of the standardization bodies, but excluding a possibility of open source implementation according to the main licenses of the movement, notably in connection with FRAND sub-licensing procedures (Adatto, 2020). Finally, completing this connection between open source, open standardization, IPR and open data, Tim Berners-Lee launched the first high-profile call for widespread openness of raw data to promote open data since 2009. The following year, he developed a five-point scale for evolving open data strategies. Based on this expertise, he was commissioned by the UK government to address open data and e-government issues, promoting in particular the transparency of public actions through digital openness, the integration of open source software within administrations and the use of open standards.

Organizational strategies and open digital paradigm

In that way, this special issue will highlight research on organizational strategies related to the open digital paradigm, combining the following strategic fields:

Open data strategies

Open data, by definition freely accessible, is correlated with a high potential for meshing resources to develop innovative applications and new business models (Zuiderwijk et al., 2014). This expected proliferation of external value-added is one of the motivations for data opening. Stakeholders of open data belong to public, private, academic and research sectors (notably through open access to scientific publications). By opening up data, a "*culture broth*" is thus created with a high potential for innovation. The

entrepreneurial typology of start-ups is particularly suited to this context (Lindman et al., 2014). The strategies of organizations related to open data aim to generate value through the exploitation of open data. This value creation can be done through software processing. Particularly about creating services on the basis of open data. The goal of processes operating on open data can be to extract information from it. Beyond the usual formatting of open data, the strategy can consist in looking for innovative approaches for an added value of data relevant interpretation. One model of action consists in linking a field of open data to other databases to obtain correlations providing new information. It is then a strategy to find added value by combining data. In this perspective, open standardization, which generates interoperability, favors crossing between databases and illustrates the possibilities of symbiosis between sub-sectors of the open digital paradigm. A downstream strategy can consist in developing products related with the information coming from open data. The operations of collecting and formatting "*buried*" data can also be linked to business models of organizations related to open data. Marketing strategies linked to open data can also be developed. In a related way, strategies can concern online availability, interfaces and ergonomic contributions that facilitate access to open data. Strategies related to open data can also consider the mutualized processing of open data that were previously processed separately, notably by applying standardized formatting to the same class of data. Thus, local authorities can pool the costs of processing same types of standardized open data, either by carrying out these operations themselves or by using external service providers. These strategies lead to economies of scale. As a result, ecosystems relating to similar or complementary open databases can be created spontaneously.

Strategies for open standardization

Concerning open standardization, the involvement strategies of organizations are linked to the will to contribute to the co-creation of a common base of digital specifications. From it, singular software product developments can be implemented. Through this participation, companies can also embed their recommendations in open standards.

Strategies for open source

The strategies of organizations concerning open source can be analogous of the open data ones, aiming to generate value through software processing effects. In this case, for the organizations involved in open source, using open source developed infrastructure, or creating value by marketing software engineering services in support of open source software. Open source strategies of organizations can also be similar to open standardization ones, i.e. contributing to the realization of common infrastructure, as an illustration the development of operating systems around the Linux kernel.

Proposals for papers

While analyzing the synergies of open source, open data and open standardization strategies, this thematic issue will also welcome proposals for papers related to the advancement of academic knowledge in each of the previously mentioned and next fields. In particular, contributions may include the following topics and beyond:

Open digital paradigm as an economic and social driver

As Monino and Sedkaoui (2016) state, "*Data opening, the phenomenon of open data, has spread around the world, thanks to its ability to generate both economic and social value.*" In this perspective, open standardization and open source have already had a major economic and social impact. For example, government strategies to deploy open source software infrastructure are

reducing costs by bypassing the need to purchase equivalent proprietary software products. Open source offers the possibility to any potential user, organization or individual, to have high quality software tools in a very large range completeness, based on open standards such as those previously described associated with Web technologies. In this way, the open digital paradigm allows to move towards greater social equity in the use of software devices. In this perspective, and in conjunction with open source and open standardization, the call will consider papers dealing with the economic and social issues of open data strategies. In particular, how the open digital paradigm can favorize emerging countries and allow the reduction of the digital divide in the globalized economy?

Scope of open data, and public and economic interest

Open data can be applied to most of the digitizable information domains and includes statistical, cartographic, cadastral, demographic, economic and ecological data. International initiatives concerning spatial data and genome sequencing have been pioneers in the constitution of open data databases as universal commons, in the perspective of Elinor Ostrom (1991). A large-scale open data process has taken place in the medical field regarding brain MRI data (Poldrack, Gorgolewski, 2014). An other innovative application of open data considers energy models (Pfenninger et al., 2017). Along with the continued expansion of the domains addressed by open data, new strategies of organizations are emerging. In particular, case studies of pioneering and innovative fields would be appreciated for this issue.

Open data and e-government: feedback, potential negative effects and the need for ethical preservation

Regarding advanced global open data and e-government strategies, the case of Estonia is often highlighted (Pappel et al., 2017; Maxat, 2019). In light of such cases, how can feedback be beneficial and translatable (process innovations, new social practices...)? What management tools and techniques can measure the quality of open data strategies in action? (Veljković et al., 2014) In contrast to the positive contributions, what negative effects of open data may emerge (Zuiderwijk, Janssen, 2014)? What can be the brakes and limits of open data (Janssen et al., 2012; Barry, Bannister, 2014)? How can we preserve the necessary ethics against possible abuses of open data (Johnson, 2014)?

Open data strategies based on external processing

As mentioned, a local administration can entrust an open database to a service provider with operational expertise, as digitization and open formatting of data favor external processing through IT networks and tools. In this perspective, we will consider articles dealing with business models and strategies related to these new cycles of open data outsourcing.

Convergences between open data and big data

If big data is often associated with IT firms, including "*Web giants*", it also concerns open data (Poldrack, Gorgolewski, 2014; Monino, Sedkaoui, 2016). Big data is indeed the generic term for the processing of massive digital data fields. Open data can therefore fall under the domain of big data depending on the size of the open data field. Moreover, in management, big data is associated with the rule of "V" elements (Opresnik, Taisch, 2015) for Volume, Variety, Veracity, Velocity and Value, the research and consulting firm Gartner incorporates open data in the "Variety" element of big data. In practice, open data increasingly involves massive databases. Among these, databases linked to

anonymized elements relating to public health (for example, the increasingly precise detection of anomalies in X-ray images), to the genome, to stellar cartography... In this perspective, research work on the singularities of big data strategies when they concern open data is part of the call.

Open data, big data and innovation typology in the field of strategy

Big data is considered as a driver of disruptive innovations (Frizzo-Barker et al., 2016; van den Broek, van Veenstra, 2018), following the concept highlighted by Christensen (2016) in strategy. These technological innovations are characterized by a low cost of introducing ranges of devices, products and services, initially exploratory and not mature, but whose quality will grow until imposing these innovations on the market by creating new uses and economic models. In this perspective, this special issue will take into account research on the implications of open data in the field of innovation (innovative strategies, process innovations). In link, what analogies could be established with the numerous organizational innovations that have appeared with open source and open standardization (collaborative platforms between contributors, process agility, cost pooling as a vector of economies of scale, implementation of non-profit consortia and associated governance neutrality, massive use of digital networks and IT tools for co-creation in the cooperative organization, community development dynamics)?

Contribution of open standardization to open data strategies

Open standardization allows the free implementation by any potential developer of components that can optimally dock with specified devices without barriers to entry (Russell, 2014). Open standardization thus drives interoperability, substitutability (ensuring technological non-enclosure) and compatibility. Open standardization applies to open data formats, allowing the automation of processes concerning the same range of open data. For example, a guidance application will be able to use all regional mapping data applying the same open standardized format. Open standardization allows to build digital specifications that can be freely implemented in open source software development. Furthermore, interoperability favors the generation of systems based on complex meshes and a high innovation dynamic. Business strategies related to open data can rely on interoperability and open standards. Open data processing can be valorized in terms of applications in that way. Using the illustration of guidance applications, open public data from professional directories can be used to indicate medical practices present in any perimeter and region of the world by using open standards of cartographic elements. In particular, administrative services making public data they hold, and optimally structuring them according to formats linked to open standardization, provide a considerable asset pool for entrepreneurship and business strategies. In this perspective, the issues linking open data and open standardization will be appreciated.

Interest in big data processing infrastructure that is operative for open data and shaped by open source and open standardization

When open data fields involve massive amounts of information, mastering the software processing infrastructure of big data becomes a key element. Therefore, it is important that high-level devices related to this infrastructure are freely available in order to compete with the proprietary tools of the large digital industry groups with significant financial power. Constitution of big data processing infrastructure, in particular usable for voluminous databases of open data, is thus a crucial present and future stake. Indeed, the technological lock-in of proprietary infrastructure could give its owners an overly dominant role in this key strategic sector. However, the optimal way to grant free use of an infrastructure able to process massive databases is through open source and open standardization.

Indeed, in another area of the digital sector, open source coupled with open standardization have succeeded in building major alternatives to proprietary products that were predominant without any real alternative, leading to market foreclosure. Thus, the open digital paradigm has already been able to remedy such situations. As illustrations, the emergence of open source Linux in the field of operating systems (Cohendet et al., 2003), and the OpenDocument format implemented in the open source office suites OpenOffice and LibreOffice in the domain of open standardization (Weir, 2009). In this perspective, what are the strategic issues related to the development of open infrastructure for processing open data fields based on open source and open standardization?

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Summary of specifications and projected timeline:

Papers can be written in English or French, and should not exceed 10,000 words.

Abstracts of 150 words presenting research questions, methodologies and expected or actual results can be sent beforehand.

Submission of papers until: **January 1, 2023**

Response to authors before: **March 15, 2023**

Receipt of final revised papers until: **May 15, 2023**

Papers, abstracts, and any questions can be sent to: **strategies.open.digital@gmail.com**