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## Call for papers – Special Issue

### Regulation of scientific *creative commons*

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The question of commons, in the sense of non-rival and nonexclusive collective goods, known in Roman law as *res communes*, are resources shared without there being any holders of specific rights to these resources (Coriat, 2015). Today, this question is emerging cross-functionally throughout the social sciences, notably in economics and management, or in law and political science. The idea of commons has arisen in very diverse fields of study such as the environment, forestry, water points, shared gardens, sidewalks, urban heritage, and culture, along with free software, information and knowledge (Hess & Ostrom, 2006; Ostrom, 2010; Eynaud & Laurent, 2017). Numerous studies have explored the subject of *open access* to common resources notably by analyzing them from two complementary angles: that of the “tragedy of commons” (Hardin, 1968), and more recently of the “tragedy of anti-commons” (Heller, 1998). Several essential questions then arise. For example, how can one avoid overexploiting a common resource and instead manage it effectively? Inversely, how can one ensure that the common resource is developed and prevent its underutilization? How should property rights be distributed among actors, at the individual, community, collective, and even state levels, to avoid under- or overexploitation? As alternatives to property, which alternative organization modes of management and organization can serve to manage the resource most effectively?

These questions resonate importantly in the case of scientific commons. The knowledge produced by researchers is intended to be diffused to the scientific community and to society overall. Consequently, a broad body of economic literature analyzes the traditional system of copyright as a monopolistic obstacle to the diffusion of scientific knowledge

(Stephan, 1996). Yet scientific knowledge intersects as it is shared and exploited, according to a cumulative process of knowledge sharing and production (Brocat & Coriat, 2015). Knowledge is then no longer considered the exclusive property of some private actors but rather as a common resource, which must therefore be managed in common (Vallat, 2017). Accordingly, Ostrom (2010) highlights the major role of small communities to define institutions and mechanisms of agreement, oversight and control: the small size of communities, which favours self-organization, would thus facilitate deliberation among the actors regarding the rules and compliance without the need for state intervention or introduction of private property rights (Benkler, 2017). Orsi (2015) extends this analysis by defending the idea of local management of commons and underlines the need for a sufficiently refined institutional analysis such that the rules protect collective usage of commons. Concerning scientific knowledge, several authors (Benkler 2017; Frischmann et al. 2014; Madison et al., 2010) nonetheless describe limited common property regimes studied by Ostrom and his followers: although applicable to a very large and varied set of resources, known as common pool resources, notably physical, they do not precisely account for the specific problems that arise in the regulation of scientific commons, related to the non-rival nature of scientific information (Nelson, 1959). The works of Rose (1986) and Boyle (2008), among many others, underscore the limits of regulation of scientific commons that rest exclusively on direct analogy with physical commons. In fact, the specificity of scientific knowledge and the importance of its impact in terms of innovation necessitate the development of adapted analyses and institutional regulation modes.

Several lines of analysis have developed along these lines in recent years, intended to integrate the specificities of scientific knowledge as a commons (nonexclusive, non-rival, shared and diffused resource) and to question the issues. For instance, several researchers propose opening these resources to society, thus promoting the idea of “open science” and “citizen science” (Brossaud, 2018). Given the cumulative nature of scientific production and the externalities of adoption linked to knowledge, scientific commons could thus be better captured through the idea of open access. Notably, because the development of the Internet has clearly heightened the need for reflection on the governance of scientific commons, hence the possibility of their rapid diffusion at a low cost (Lessig, 1999 and 2002), and the fact that it adds new production modes (e.g. commons-based peer production) to existing modes such as the company (Benkler, 2002, and Benkler & Nissenbaum, 2006) has raised unprecedented questions of regulation. Thus, the culture of “open” seems to have strongly favoured the conception of scientific knowledge as “commons” (Brocat & Coriat, 2015). Militants of the free world argue for a vision of ownership that is not conceived as a monolithic set but rather as a bundle of rights. These rights correspond, in Roman law, to the *usus* (use of the object owned), *fructus* (production based on the object owned) and *abusus* (transformation of the object owned). Schlager and Ostrom (1992) coined the terms access right, withdrawal right, management right, exclusion right, and alienation right.

Creative commons are thus emblematic of this distributed approach to property rights. The corresponding licenses are contracts between an author and users that allow the rights holder to specify the conditions of access and usage that they want to apply to their

productions. We can therefore envision qualifying actors by different statuses albeit for the same object owned by an author. Thus we can distinguish the *authorized user* who can access knowledge, the holder of usage and management rights (*claimant*), the owner without a right to sell (*proprietor*), which precludes the transfer of ownership, and an owner with a right to sell (*owner*), which may involve a legacy, sale or even donation of the object (Broca & Coriat, 2015).

Scientific creative commons may therefore be considered as contracts of open collaboration related to scientific knowledge that is produced and organized in collaboration between different actors, including researchers. This collaboration may be between researchers and existing firms, as in the case of research contracts or public/private partnerships, or between researchers and an individual who wants to exploit the results of scientific research to develop an entrepreneurial project. Note that public powers currently encourage such collaboration, and that university structures are dedicated to them. For example, one of the missions of the Instituts Universitaires Technologiques (IUT) is to ensure the technological transfer of competencies and knowledge developed within research laboratories via training, notably professional licences. Universities are also increasingly developing structures to nurture entrepreneurs (notably incubators) to favour such transfers. These establishments and university components reflect open innovation models characterized by the circulation of ideas and knowledge between laboratories and businesses (Corbel, Chomienne, & Serfati, 2011; Chomienne, Corbel, & Denis, 2011).

More recently, at the direct juncture of problems of scientific commons and innovation, the idea of innovation commons has been explored by several authors (Potts, 2012a, b; Frischmann *et al.*, 2014; Allen & Potts, 2015, 2016). This notably entails defining a new type of commons that cannot be reduced to “standard” information commons or to the physical commons notably studied by Ostrom. These commons arise in response to innovation situations typically marked by strong uncertainty and problems of free-riding on the collective innovation effort. Potts (2012b) contends that innovation commons are characterized by several properties. First, they rest on the pooling of resources (technical, human capital, etc.) that may be competing at least partly, and that are subject to congestion effects, similar to the commons described by Ostrom. They are also characterized by the pooling of another form of inputs, consisting of information accumulated in the commons at one point and in a given space, highly specific to it and whose value comes precisely from the pooling of different elements of information held individually by the participants in the common. Exploitable by the participants exclusively, this information resource, absent from physical commons, defines innovation commons in the strict sense. Lastly, unlike other forms of commons, innovation commons are most often temporary.

The emergence of the concept of innovation commons prompts renewed reflection on the institutions of regulation of scientific commons and their link to public and private policies of research and innovation. Potts (2012b) argues that innovation commons constitute an original institution that allows the production and diffusion of knowledge and management of innovation in an uncertain environment. They may prove more effective than traditional

solutions based on recourse to private property law or public intervention, and thus engender new forms of organization of governance, extending the pioneering work of Allen (1983) on situations of “collective invention” or of von Hippel (2005).

Lastly, empirically, many particularly interesting experiences are worth mentioning, notably because they stimulate reflection on the conditions of regulation of scientific commons. An experiment conducted in Lyons by the Coexistence group has brought to light three necessary conditions for successful management of knowledge in common. The first is an operational plan to make the process of fabrication of research a “common” in its own right, by integrating actors other than researchers. Digital tools and creativity methods such as design thinking may be particularly useful in this sense. Second, in terms of regulation, rules for accessing and using scientific knowledge must be put in place to encourage knowledge sharing and to reduce negative externalities for society. This objective may be met by creating dedicated third places, for example. Third, in the political sphere, common management of scientific knowledge drives the community concerned to acquire organizational means to achieve this goal notably by adopting shared governance (researchers, society, socio-economic actors).

Several questions nonetheless remain: To whom does the idea and results of commercialized research really belong? How should the economic result be distributed? What form of contract is best adapted to these open collaborations? What are the challenges? If some research proposes interesting lines of reflection that take into account the nature of the invention (embryonic *vs.* mature; generic *vs.* specific, see for example Öcalan Özel & Pénin, 2016), it is still necessary to analyze the management modes of scientific commons and their rules more specifically, together with the precise conditions of effectiveness and of implementation, and the inherent risks.

The present call for contributions aims to extend the works cited above. Researchers are invited to propose original conceptual and/or empirical studies to contribute to the advancement of reflection on the regulation of scientific creative commons. Here is a non-exhaustive list of questions that may be addressed:

- Do collaboration contracts between researchers and socioeconomic actors possess specific characteristics compared with other types of contracts? Can a typology of such contracts be produced? If so, on what criteria would such a typology rest; would they be specific to firm size (small, mid-size, large company), legal status, sector, etc.?
- Do analytical frameworks within economics and administration account for the specificities and characteristics of collaboration contracts that may be signed between researchers and various socioeconomic actors? How well are they adapted to the specific constraints and objectives of scientific research? Do legal frameworks currently pose quantitative and qualitative risks in terms of optimal investment in research and innovation? What lines of reforms can be envisioned within the existing legal framework to take into account advances in academic reflection and the reality of prevailing practices?

- What conditions (intellectual, organizational, etc.) favour scientific creative commons? What are the respective roles of researchers and various socioeconomic actors in ensuring such conditions? What roles should research establishments and state institutions play? Are their roles complementary or substitutable? What are the potential consequences of the interweaving of the roles of different actors in governance of public and private research? Can the analysis of scientific commons engender recommendations that may help define public policy concerning research?
- Through which specific modes of regulating commons can an innovation community collectively manage scientific knowledge? What formal and informal institutions can best regulate production and diffusion of scientific commons?
- Are there particular risks associated with collaboration between researchers and actors in the socioeconomic world? Can they be evaluated and averted? How can one avoid the costs and negative externalities for each of the actors should a risk materialize? Do the public authorities have a particular role to play in regulating such risks?
- How is the digital world hindering or encouraging development of scientific creative commons? Can digital technology be considered a preferred common space for the diffusion of scientific knowledge? Are there limits in terms of contemporary difficulties in regulating digital space, given its global nature?
- What management methods can favour the development of scientific creative commons? Can development be associated with particular forms of innovation management?
- Is the relationship between creative commons and more classic legal forms such as copyrights or patents one of substitution or of complementarity? Might innovation and creativity be initially facilitated by a system of creative commons and then be replaced by forms of classic ownership rights, as already seems to be the case in other domains? How can we explain these evolutions? Are they foreseeable? What are the costs and comparative advantages of different organization modes on the life cycle of the creation?

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- April 1, 2019 : Deadline for complete manuscripts through online paper submission:  
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Guideline for authors: [http://www.cairn.info/docs/Instructions\\_for\\_authorsGB110816.pdf](http://www.cairn.info/docs/Instructions_for_authorsGB110816.pdf)

- February 1, 2020 : Final notification for acceptance.

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