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► **To cite this version:**

David Vallat. Managing Knowledge Commons in a Connected World: An Organizational Perspective. Journal of Openness, Commons & Organizing, 2023, 1 (2), pp.27-32. hal-04164670

**HAL Id: hal-04164670**

**<https://hal.science/hal-04164670v1>**

Submitted on 24 Jul 2023

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# Managing Knowledge Commons in a Connected World: An Organizational Perspective

David Vallat<sup>14</sup>

## Abstract

The literature about commons is now abundant, in particular in economy, sociology and more and more, in management. In this article, I try to shed light on a neglected issue: the organizational nature of commons in a connected world. Commons, in particular knowledge commons, have an organizationality. They are and need to be organized. They keep becoming more and more open, and experience specific organizing processes. But what is changed when individuals are institutionally connected far beyond the time-space of their activities? What is transformed in communalization processes by the hyperconnectivity of our technologies and our societies?

**Keywords:** commons; knowledge; organization; organizing; connectivity; hyperconnectivity.

## Introduction

Specific practices are often called to foster adaptation to a complex and uncertain world, e.g., agility and education to agility, openness to creativity, active development of organizational learning or adoption of system thinking (see Argyris, 1993; Nonaka, 1991 or Senge, 2006). The bulk of this adaptative invitations converge in their stress on organizational learning or the organizationality of learning (Hällgren *et al.* 2018). Resources need to be allocated, roles need to be defined, rhythms and temporalities need to be elaborated so as structure the new collective knowledge underpinning new organizational dynamics. Indeed, commons, as material facilities, are often interwoven with knowledge commons, the latter enabling the former. Knowing together is required to act together and vice versa (Cook and Brown, 1999). For long, management and organization scholars have been aware of this issue. Knowledge management became a research subject in the 1990s, beginning with Nonaka and Takeuchi's (1995) work on the dynamics of the learning organization and expanding later with the literature about communities of practices (Lave & Wenger, 1991; Wenger, 1998; Brown & Duguid, 1991). Organizational learning results in part from the social interactions that occur in the workplace (Brown and Duguid, 1998). Learning is then thought of as a process aimed at developing contextualized (in adequacy with a specific context) and operational ("actionable" according to the term of Chris Argyris; 1995) knowledge. Lave & Wenger (1991) speak of situated learning which is based on collaboration, observation and imitation in order to produce knowledge to solve problems. Some authors even

consider that the existence of organizations can be explained by their ability to grasp, synergize, and make use of knowledge, something that the market would be unable to do efficiently (Benkler, 2002; Brown & Duguid, 1991).

Many authors (Hess & Ostrom, 2011; Benkler, 2002; Rifkin, 2014) have demonstrated that knowledge strongly benefits from being produced and organized collectively in accordance with the principle of the commons as theorized by Elinor Ostrom (1990). Collective practice and knowing are entangled. Indeed, knowledge grows when it is shared and socialized. The particularity of knowledge is that it is a non-rival good (its individual use does not prevent its simultaneous use by others) that fuels innovation (technical progress), work productivity (Powell & Snellman, 2004), and growth (Romer, 1986, 1994). Knowledge is at the heart of communalization process. It is the epitome of it.

This phenomenon has obvious institutional and societal dimensions. While the world has become more complex and uncertain, the "Internet Galaxy" (Castells, 2002) contributes to both the acceleration of changes and their regulation. Indeed, the production and management of knowledge has been deeply transformed by the constantly more distributive and accessible character of knowledge thanks to the Internet (Benkler, 2006). Wikipedia, Creative Commons licenses (Lessig, 2004), and Open Access culture (Suber, 2012) all illustrate the creative and transformative potential of the participatory culture associated with the Internet (Benkler, 2002, 2011). In organization and society at large, open access to knowledge promotes collaboration, sharing, and exchange; further, it nourishes creativity, democratizes innovation (Hippel, 2005), and facilitates adaptation to the upsets of a complex world. On that note, the central question facing organizations is: how to produce and manage knowledge as efficiently as possible in a hyperconnected world? What is changed by the institutional connectivity of our world in the process of knowledge communalization?

## 1. Knowledge as a commons

Before exploring further the commonality of knowledge, it worth noting the relevance of the concept of commons for knowledge production in organizational contexts (Fournier, 2013). The collaborative culture associated with the Internet stems from its academic origins (Castells,

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2002) and from the Open Access culture more generally. Both are part of a scientific imprint still guiding Internet practices. While this cultural characteristic was not alone in contributing to the creation of Internet culture, it does constitute a major foundation according to Castells (2002). As such, the collective/collaborative production of content —of which Wikipedia or Linux are emblematic (Tapscott & Williams, 2008)— has been seeping into organizations, if only by way of generational effect (generation Y) (Palfrey & Gasser, 2008), and thus contributing to the construction of a collective, adaptive, and creative collective intelligence (Woolley et al., 2010).

These collaborative practices (Linux, Wikipedia, etc.) can be characterized by the concept of commons — a concept that has the merit of referring to a shared imaginary situated far beyond the usual market and state regulations (Bollier & Helfrich, 2014; Coriat, 2015; Dardot & Laval, 2014; Hardt & Negri, 2009). The commons' imaginary has been explored in great depth, notably by the Nobel Prize economist Elinor Ostrom (1990). The development of the Internet has enabled an exponential growth of the digital commons (Benkler, 2002, 2006; Bollier, 2011; Hess & Ostrom, 2011; Lessig, 2004), which has in turn permitted a reflexive consideration of the production of collaborative knowledge: “In one sense, this is simply a rediscovery of the social foundations that have always supported science, academic research, and creativity” (Bollier, 2011, p. 36).

The concept of the commons was first employed to speak of common-pool resources that require collective management (Ostrom, 1990) or else risk facing “the tragedy of the commons” (Hardin, 1968) —that is to say, excessive exploitation of a common good (e.g., fish stock) for private purposes according to the well-known logic of the free rider (Olson, 1965; Lorino, 2022). It is important to underscore that a common-pool resource only becomes a commons once a communal management of the resource has been put into place (see Ostrom 2005, pp. 258-269). Commons, thus, must be governed. Conversely, a common-pool resource can exist through a bundle of rights without implying communal governance (the climate is a common-pool resource but not a commons). By extension, a public good governed communally becomes a commons, as is the case of Wikipedia or Linux, both of which are knowledge commons (Bollier, 2011, p.28; Coriat, 2015).

After the first works on the commons, which date back to the late 1970s and which focus on the management of rare resources (Ostrom & Ostrom, 1977), the idea of the commons was reinvented, around culture (Bertacchini et

al., 2012), the use of the Internet (Benkler, 1997), and knowledge (Hess & Ostrom, 2011).

Empirical studies on the governance of communal resources have allowed for the establishment of operating principles that facilitate the perpetuation of communal governance (and thus enable the protection of common resources). These principles do not automatically imply the success of a communal governance, but they have been identified in all instances of success. The principles are as follows (Ostrom, 1990, pp. 90-102; Ostrom 2005, pp. 258-269):

1. The limits of the common good are clearly defined; the access rights to the common good are clear.
2. The rules governing the use of the common good are adapted to local needs and conditions (for example, in relationship to the good's availability).
3. A system allowing individuals to participate in the definition and modification of these rules on a regular basis has been established.
4. A system for community members to self-check their behaviors has been established.
5. A graduated system of sanctions for those who violate the community's rules is provided for.
6. An inexpensive conflict resolution system is available to community members.
7. The community's right to define its own rules of operation is recognized by external authorities.
8. When applicable (such as for a common good that exists across borders or a common good assigned to a range of territorial levels), the organization of decision-making can be established at several levels while respecting the rules set out above.

A central point in the works of Elinor Ostrom is to demonstrate that the commons are resources subject to social dilemmas: should we consume the resource without measuring its use and risk its disappearance or should we manage it communally and reduce our use of it? Interactions between people can have positive, negative, or nuanced effects on the future of the common resource. As such, the existence of a common-pool resource does not necessarily imply a communal governance of the resource. Privatization constitutes a constant threat to communal resources. As the global economy rests largely on the production and distribution of knowledge, there is a strong temptation to appropriate collaboratively produced knowledge for one's own personal gain. This explains movements such as Free Software<sup>15</sup>, Open Access (Suber, 2012), and Creative Commons licenses (Lessig, 2004), which seek to make the resource communal, a commons — that is to say, a good that is communally managed in order to prevent its private appropriation. Indeed, the more the knowledge resource is shared, the

<sup>15</sup> <https://www.gnu.org/philosophy/philosophy.en.html>

more it develops and advances. This sharing is made much easier by information and communication technologies, which bring the cost of sharing to nearly nothing (Rifkin, 2014). The Internet allows for free access to nearly all digital productions (of knowledge in particular) and in doing so democratizes creativity (Anderson, 2012).

These collaborative practices obviously create value for society. The Free Software movement is at the forefront of the communal production of value for the benefit of all, treating knowledge as a communally managed good. The Linux operating system, the Firefox web browser, the Arduino microcontroller, and the Wikipedia encyclopedia are all innovations brought about by distributed and democratized development (Rifkin, 2014; Tapscott & Williams, 2008; von Hippel, 2005).

These collaborative, transformative practices do not function without rules. Yet, to face changes in the environment, the collaborative construction of knowledge within organizations requires cooperative work practices that are rather incompatible with rigidly hierarchical organizational forms. Thus, knowledge conceived as commons (Hess & Ostrom, 2011; Ostrom, 1990) throws into question the modes of managing organizations in a hyperconnected world where knowledge is a source of creativity and innovation that enables adaptation to a complex and volatile environment.

## 2. From knowledge as commons to organization as commons in a hyperconnected world

Internet has made the production and dissemination of knowledge easier. It has involved, as well, the implementation of a digital commons (Benkler, 2006; Lessig, 2004) to control the potential privatization of this knowledge.

If we agree that the principal reason for the existence of an organization is, much more than the reduction of transaction costs (Coase, 1937), the production of knowledge (to provide answers to the constant changes of a complex environment), then an organization would do best to operate as a commons, which is the organizational form best adapted to creating knowledge — especially in the era of digital networks of knowledge distribution. Indeed, collaborative governance enables firms to operate like learning organizations (Argyris, 1993; Nonaka & Takeuchi, 1995; Senge, 2006), which leads to a continuous production of knowledge to adapt to the environment. Moreover, by situating workers at the heart of its strategy, the learning organization promotes the implementation of a meaningful professional environment (close to the

concept of sensemaking – Weick, 1993) based on trust and autonomy. The result is greater satisfaction in the workplace, and thus greater productivity, worker creativity, and profitability for the organization (Senge, 2006).

Learning organizational processes can operate in many ways; using the commons (rather than a common good or a common-pool resource) as an interpretive framework (as Ostrom encourages us – Ostrom, 2005) allows us to find some unifying principles: collaborative functioning as a group, decision-making deliberation (consensual and/or democratic), autonomy, shared objectives and trust. Here are some examples:

- Considering an organization as a collaboratively managed commons is nothing new; worker cooperatives (Boudes, 2017), for example, operate along these lines. The International Co-operative Alliance sets out the movement's values thusly: "A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise<sup>16</sup>". These values are implemented according to seven principles<sup>17</sup>, most of which are comparable to those implemented in the management of commons: 1) voluntary and open membership; 2) democratic member control; 3) member economic participation; 4) autonomy and independence; 5) education, training, and information; 6) co-operation among co-operatives; and 7) concern for community. As of 2018, there are over 3 millions cooperatives in the world (Karakas, 2019). Communal governance, then, is far from marginal.
- Agile management can also be understood within the framework of the commons. The agile methods initially conceived in the context of producing software (Schwaber & Beedle, 2001) have been formalized in a manifesto: *The Manifesto for Agile Software Development*, also called *The Agile Manifesto* (Beck et al., 2001). The manifesto sets forth very pragmatic ways of guiding collaborative work toward customer satisfaction (which also plays a part in the collaboration) through the iterative and incremental production of tangible results. The team's operations are based on autonomy, trust, and constant self-regulation. This approach, which relies on flexibility and the acceptance of change, has long since spread beyond the field of software production. Here again, the team functions like a commons, taking care to manage a common resource (the project) by building

<sup>16</sup> <http://ica.coop/en/whats-co-op/co-operative-identity-values-principles>

<sup>17</sup> <http://ica.coop/en/whats-co-op/co-operative-identity-values-principles>

its own rules based on collaboration, exchange, transparency, autonomy, and trust.

Governing the organization like a commons is not the prerogative of technology companies practicing so-called “agile management” (Holbeche, 2015). It is also practiced by industrial firms such as FAVI, Harley Davidson, and Gore (Carney & Getz, 2009), for whom knowledge is a common good shared in such a way as to enable quick reaction, anticipation, adaptation, and innovation. The company FAVI (Fonderie et Ateliers du Vimeu [Foundry and Workshops from Vimeu]), which has manufactured copper siphons, water meters, and gearbox forks in France for some fifty years, has implemented an original organizational model that combines creativity and quality. Under the leadership of its director Jean-François Zobrist, FAVI gradually transformed itself from a hierarchical, Tayloristic organization based on control to a firm self-managed by employees, based on trust, autonomy, and personal commitment. The firm’s activities were divided up into some fifteen “mini-factories” composed of 10 to 40 people, with each group dedicated to a client and self-organized (Carney & Getz, 2009). A strong customer-oriented stance gave FAVI employees a common project. Employees visit customers on a regular basis to observe how the products they manufacture are being used; this gives the workers a real knowledge of their customers’ needs and enables them to make constant improvements (*Kaizen*) (Imai, 1986). This mode of management — which Jean-François Zobrist (2013) says begins with the idea that “man is good” — promotes both the quality of life at work and good economic results (40% of sales for export, 3% growth per year in an extremely competitive sector). The firm managed as a commons facilitates the creation of common knowledge, which has a positive impact on its results.

These different (Western) approaches to thinking of organizations as commons are in line with the works of MIT Sloan School of Management professor Douglas M. McGregor (1960). Influenced by Abraham Maslow’s (1954) work on the factors that motivate human behavior, and also following Mayo (1933) and works from the human relations movement, McGregor highlights that it is possible (and even desirable) to trust in employees (a stance in opposition to the dominant theory of organizations (Taylor, 1911) because they seek fulfillment through their work. Betting on workers’ intrinsic motivation to give their work meaning (Ryan & Deci, 2000) is a characteristic feature of how commons work. Each individual is aware of the meanings of their actions, of their place in the collective (and the importance of this awareness is a bulwark against free rider behavior; Olson, 1965).

It is worth noting that other forms of commons exist in different cultural contexts, though they too originate in the desire to create knowledge so as to adapt to an uncertain environment. Take for example the case of Eisai, the 4<sup>th</sup> biggest pharmaceutical laboratory in Japan, which was studied by Takeuchi, Nonaka & Yamazaki (2011). In 1988, Haruto Naito, the CEO of Eisai, sought to find a way to promote both innovation and the common good. Eisai began to implement a knowledge management policy that aimed to create knowledge through collaborations between lab employees and patients they met in hospitals, nursing homes, etc. This approach is based on the idea of grasping tacit knowledge according to the principle of socialization developed by Nonaka (1991, 1994).

To complete this vision of a knowledge-creating firm (Nonaka & Takeuchi, 1995), Nonaka and Konno (1998) identify a privileged space intended for discussion, called *Ba*, where a shared culture based on trust and empathy emerges. *Ba* is a source of mutual enrichment by way of reciprocal attentiveness and respect of others’ differences and viewpoints. This quest for consensus in goodwill, which begins from a point of different or even divergent opinions, enables innovative knowledge to emerge in a collegial fashion. *Ba* also acts very concretely as a knowledge commons. By practicing knowledge management (by creating this commons), Eisai develops each individual’s commitment to their work and gives meaning to this work, which contributes to positive economic results (Takeuchi, Nonaka, & Yamazaki, 2011). Indeed, the firm is attentive to its environment, with each employee acting as a sensor. The sharing of individual knowledge leads to a communal, collective knowledge that is greater than the sum of its parts.

### Conclusions: openness and connectivity on the way to organizational commons

Building knowledge collaboratively appears indispensable to adapt to the rapid changes in our environment. Further, following Hess & Ostrom (2011) this knowledge should be considered as a common good in a collective driven by the principles of reciprocity, autonomy, transparency, and trust. It seems that such an approach is made possible by a view of organizations that focuses on individuals — in particular, on their freedom, their responsibility, and their well-being at work (along the lines of Mayo, 1933, and McGregor, 1960).

In this context, the organization is conceived of as a commons whose sustainability depends on collaborative knowledge management (or as Nonaka, 1991, formulates it, knowledge creation), itself conceived of as a commons. The collective intelligence that emerges from the sharing of knowledge presupposes a large variety of profiles



among commoners as well as truly independent thought. Today, these individual profiles are more and more hyperconnected, which facilitate the ability to freely exchange ideas (so as to build common knowledge that takes into account various points of view). Of course, it should go hand-in-hand with a benevolent professional environment (Duhigg, 2016) where it is possible to express oneself freely. Conversation, as it has been used by philosophers since Plato, enables learning through the confrontation of ideas in a radically open and unexpected way (because of the hyperconnectivity of individuals). In brief, it is a matter of presenting explicit inferences that other members of the organization may attempt to refute<sup>18</sup> — according to a principle of discussion which seeks a solution that will be accepted by all (Habermas, 1994) — through an informed dialogue fed by contradictions (Argyris, 1993; Habermas, 1994; Morin, 2008). Combining an approach to knowledge as a commons with an organization that operates as a commons enables organizational learning (Argyris, 1993; Senge, 2006), which in turn enables adaptation to a changing, hyperconnected world.

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<sup>18</sup> This relates to the principle of falsifiability that underpins the scientific approach as according to Popper (2002).

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