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► **To cite this version:**

David Vallat. From knowledge as a commons to organization as a commons. *Memorias*, 2016. hal-03301430

HAL Id: hal-03301430

<https://hal.science/hal-03301430>

Submitted on 27 Jul 2021

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From knowledge as a commons to organization as a commons

David Vallat*

Abstract

Description: In the era of the information society, of a volatile, uncertain, complex and ambiguous (VUCA) world, building knowledge collaboratively appears indispensable to adapt to the rapid changes in our environment. Further, this knowledge should be considered as a common good in a collective driven by the principles of reciprocity, autonomy, transparency, and trust. **Point of view:** 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. In this context, the organization is conceived of as a commons whose sustainability depends on collaborative knowledge management, itself conceived of as a commons. **Purpose:** After highlighting the volatile, uncertain, complex, and ambiguous character of the current knowledge environment, this article shows that managing knowledge through collaborative processes (which may be characterized by the concept of the commons) appears indispensable to adaptation in this unstable setting. Also, it discusses the idea that managing knowledge as a commons leads to a deep alteration of the way organizations are managed. **Conclusions:** Combining an approach to knowledge as a commons with an organization that operates as a commons should question the ways we manage our organizations.

Keywords: complexity, holacracy, ICT, knowledge commons, knowledge management, open access.

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Recibido: 18 de marzo de 2016.

Aprobado: 28 de julio de 2016.

Cómo citar este artículo: Vallat, D. (2016). From knowledge as a commons to organization as a commons. *Memorias*, 14(26), 67-79. doi: <http://dx.doi.org/10.16925/me.v14i26.1627>



Del conocimiento como un bien común a la organización como un bien común

Resumen

Descripción: en la era de la sociedad de la información, de un mundo volátil, incierto, complejo y ambiguo (VUCA), la construcción colaborativa del conocimiento parece indispensable para adaptarse a los rápidos cambios en nuestro entorno. Además, este conocimiento se debe considerar como un bien común en un colectivo impulsado por los principios de reciprocidad, autonomía, transparencia y confianza. **Punto de vista:** parece que este enfoque es posible gracias a la visión de las organizaciones que se centran en las personas, en particular, en su libertad, su responsabilidad y su bienestar en el trabajo. En este contexto, la organización se concibe como un bien común cuya sostenibilidad depende de la gestión colaborativa del conocimiento, concebida como un bien común. **Propósito:** tras destacar el carácter volátil, incierto, complejo y ambiguo del entorno actual del conocimiento, este artículo muestra que la gestión del conocimiento a través de procesos colaborativos (que puede caracterizarse por el concepto de bien común) parece indispensable para la adaptación en este entorno inestable. Además, se discute la idea de que la gestión del conocimiento como un bien común conduce a una profunda alteración de la forma en que se gestionan las organizaciones. **Conclusiones:** la combinación de una aproximación al conocimiento como un bien común con una organización que funciona como un bien común debe cuestionar las formas en que manejamos nuestras organizaciones.

Palabras clave: complejidad, holocracia, TIC, bien común del conocimiento, gestión del conocimiento, acceso abierto.

Do conhecimento como um recurso comum (*commons*) à organização como um recurso comum (*commons*)

Resumo

Descrição: na era da sociedade da informação, de um mundo volátil, incerto, complexo e ambíguo (VUCA), construir conhecimento de forma colaborativa parece ser indispensável para se adaptar às rápidas mudanças no nosso ambiente. Além disso, esse conhecimento deve ser considerado como um recurso comum num coletivo guiado pelos princípios de reciprocidade, autonomia, transparência e confiança. **Ponto de vista:** parece que, com tal abordagem, é possível formar uma visão das organizações que foca nos indivíduos — em especial, em sua liberdade, sua responsabilidade e seu bem-estar no trabalho. Nesse contexto, a organização é concebida como um recurso comum cuja sustentabilidade depende da gestão colaborativa do conhecimento, em si concebida como um recurso comum. **Propósito:** depois de ressaltar o caráter volátil, incerto, complexo e ambíguo do atual ambiente do conhecimento, este artigo mostra que a gestão do conhecimento por meio de processos colaborativos (os quais podem ser caracterizados pelo conceito de recurso comum) parece indispensável para a adaptação nesse cenário instável. Adicionalmente, discute a ideia de que administrar o conhecimento como um recurso comum leva a uma alteração profunda na forma como as organizações são administradas. **Conclusões:** a combinação de uma abordagem do conhecimento como um recurso comum com uma organização que opera como um recurso comum deveria levar a questionar as formas em que administramos as nossas organizações.

Palavras-chave: acesso aberto, complexidade, gestão do conhecimento, holocracia, *knowledge commons* (corpo comum de conhecimento), TIC.

Introduction

In a “hyperconnected”¹ world, organizations find themselves in an environment that is ceaselessly becoming more complex —ever more volatile, uncertain, and ambiguous. In that sense, “the best way for a firm to control and manage its environment is to become an expert in the art of learning and to become capable of swift adaptation” (Argyris, 1993, p. 4). Learning in order to adapt, being actively watchful, and making decisions informed by a strong knowledge of the environment happens much more efficiently when all the members of an organization collaborate with a common direction in mind (Likert, 1967). Many authors (Hess & Ostrom, 2011; Benkler, 2002; Rifkin, 2014) have demonstrated that knowledge benefits from being produced and organized collectively in accordance with the principle of the commons as theorized by Elinor Ostrom (1990). Indeed, knowledge grows when it is shared. This is the idea that underlies the dissemination of scientific knowledge dating back to the publication of the first scientific reviews in France (*Journal des savants* in 1665) and England (*Philosophical Transactions of the Royal Society* in 1665). 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).

After first highlighting the volatile, uncertain, complex, and ambiguous character of the current knowledge environment, we will show that managing knowledge through collaborative processes (which may be characterized by the concept of the commons) appears indispensable to adaptation in this unstable setting. Then, we will discuss the idea that managing knowledge as a commons leads to a deep alteration of the way organizations are managed (see figure 1).

A volatile, uncertain, complex, and ambiguous environment implies knowledge management

The economic, social, and political context is becoming more complex worldwide, and the advent of “The Information Age” (Castells, 2000) relies on one resource in particular: knowledge.

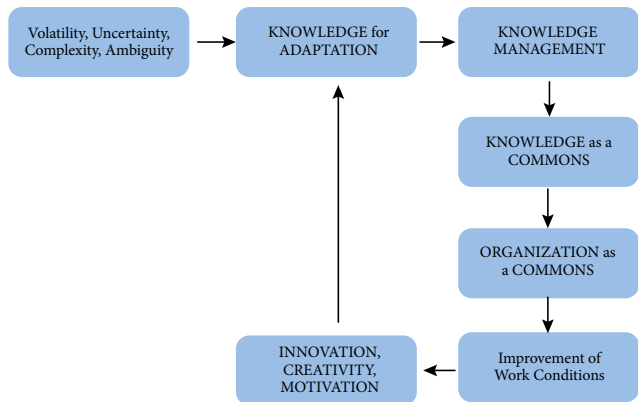


Figure 1. From knowledge as a commons to organization as a commons. Compiled by the author

A VUCA Environment

This new environment of great systemic economic as well as social, political, and military instability can be expressed by the acronym VUCA (Volatility, Uncertainty, Complexity, and Ambiguity). Borrowed from the American army (Jacobs, 2002), which uses it to apprehend the international context post-September 11th, the concept is increasingly used in the world of business (Johansen, 2007). A VUCA context means the conjunction of:

- A volatile environment. That is to say, an environment subjected to frequent and brutal changes (Boston Consulting Group, 2012). The September 11th attacks; the subprime crisis (2007-2008) that has evolved into a sovereign debt crisis in Europe, which has itself collided with the migrant crisis resulting from the civil war in Syria; the advent of the Islamic State terrorist group; the collapse of oil prices; Brexit, these are all examples of such volatility. The “black swans” (Taleb, 2010) are accumulating. Are we blind to weak signals? In any event, information and communication technologies complicate decision-making, first, by multiplying the parameters to be taken into consideration, and second, by compressing reaction times (which are much shorter for the Internet than they are for earlier technologies).
- An uncertain environment. Uncertainty exists because it is impossible to master all environmental parameters and even more so to anticipate changes (Morin, 1986, 2008). We can no longer rely on past experience to anticipate the future (Taleb, 2010); uncertainty delays and even paralyzes decision-making. The understanding of uncertainty

¹ World Economic Forum (2012b).

thus becomes a central issue for organizational strategy (McCann, Selsky, & Lee, 2009).

- A complex environment. The environment is complex due to its systemic dimension (Morin, 2008; Morin & Le Moigne, 2000). It is very difficult to understand the interactions between all of the elements that constitute the world (from the economic to the political to the social, cultural, and so on). This complexity amplifies uncertainty by way of cumulative feedback phenomena: the civil war in Syria produces terrorism and migrants that impact a greatly indebted Europe (due to the subprime crisis) and contributes to destabilizing European countries on demographic, cultural, political, and budgetary levels among others. It unsettles because it also calls into question the Western (positivist) conception of knowledge formation (Morin, 1986; Morin & Le Moigne, 2000). A complex environment then, calls for contextualized/pragmatic actions far from the ideals of a “universal truth” or a “one best way”.
- An ambiguous environment. Ambiguity exists because it is difficult to clearly interpret observed phenomena. This difficulty is directly related to the issue of complexity. It is tempting to provide fast solutions to the problems presented (especially since the environment is rapidly changing), but it is exceptionally difficult to understand all of the consequences of decisions made given such lengthy chains of consequences and feedback. As such, a hasty action decided on with little forethought and for political reasons can entail a chain of consequences that conflicts with one’s goals (e.g., the US military intervention in Iraq in 2003).

Like Sun Zi, we know that the strategist (who directs and is responsible for his army—and by extension to the world of business, for his organization²) strives to anticipate the future:

If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle (Sun Zi, 2007, III-18).

² For an overview of non-military applications of Sun Tzu’s thought, see McNeilly (2003).

The complexity of the VUCA world calls for strategy because “only strategy can move forward in uncertainty and randomness [...] [It] is the art of using information that arises in action, incorporating it, quickly formulating action plans, and being able to gather the greatest amount of certainties in order to face the uncertain” (Morin, 1990, p. 178).

Several measures are recommended for adapting to a VUCA world regardless of organizational form or sector: training and shaping things to be agile, opening up to creativity, developing organizational learning (Argyris, 1993), training in system thinking (Senge, 2006), creating collaborative environments, etc. (IBM, 2010; IBM, 2012). One point common to all of these measures is that they bring knowledge management to the fore.

Managing knowledge to evolve in a VUCA environment

While over mankind’s history it could be said that “knowledge makes wealth” (Landes, 1999), the advent of “The Information Age” (Castells, 2000) has altered the situation. The global economy is founded on knowledge³, which is thus perceived as the cornerstone of competitiveness in the context of an international competition (World Economic Forum, 2012a) that takes place in a world that is continually shrinking (Friedman, 2007) due to the combined development of the means of transporting humans, merchandise, and information.

Knowledge is above all the sole means of rendering somewhat intelligible the world’s complexity (its VUCA character) and enabling informed action. Knowing how to manage knowledge efficiently gives a competitive advantage, as has been amply (and historically) documented by researchers (Garvin, 1993; Miller, 2002; Nonaka, 1991; Senge, 2006; Umemoto, 2002)⁴ and managers⁵ alike; in particular, knowledge management enables the development of an organization’s flexibility (Volberda, 1996). The Foresight 2020 study, conducted by the magazine *The Economist* by surveying over 1,500 executives worldwide, names knowledge management as the field of activity that

³ See: OECD (1996, 2005, 2010, 2012), Wilson & Briscoe (2004), and European Commission (2010).

⁴ This advantage enables developed countries to remain competitive despite high labor costs (Teece, 1998).

⁵ See in particular contributions by the former director of Shell’s Strategic Planning Group (de Geus, 1988, 2002).

offers the greatest potential for productivity gains in the years to come (Economist Intelligence Unit, 2006).

Knowledge management became a research subject in the 1990s, beginning with Nonaka and Takeuchi’s (1995) work on the dynamics of the learning organization, which encourages the thorough rethinking of organizations’ strategies. Certain 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 is incapable of doing efficiently (Benkler, 2002; Brown & Duguid, 1991).

While the world has become more VUCA, 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). 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 VUCA world. On that note, the central question facing organizations is: how to produce and manage knowledge as efficiently as possible in a hyperconnected world?

Knowledge as a commons

Before we explore the way in which knowledge can be managed as a form of commons, we must note the pertinence of this concept in the domain of knowledge production.

The collaborative culture associated with the Internet stems from its academic beginnings (Castells, 2002) and from Open Access culture more generally; 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 (Surowiecki, 2004; Woolley et al., 2010), adaptive, and creative intelligence.

These collaborative practices (Linux, Wikipedia, etc.) can be characterized by the concept of the commons —a concept that has the merit of referring to a shared imaginary situated beyond the usual commercial and state regulations (Bollier & Helfrich, 2014; Coriat, 2015; Dardot & Laval, 2014; Hardt & Negri, 2009). The imaginary of the commons has been explored in great depth, notably by the Nobel Prize winning 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 idea of the commons is a complex one. It was popularized by the ecologist Garrett Hardin (1968) in his article “Tragedy of the Commons” (van Laerhoven & Ostrom, 2007). To properly understand the idea requires a classification of economic goods — undertaken by Samuelson (1954)— according to two criteria (whose intersection is presented in figure 2):

- Exclusion, which gauges the alternately public or private character of a good by asking: can one easily exclude certain individuals from the use of this good or not?
- Rivalry (or subtractability), which indicates the degree of a good’s availability in relation to its use by asking: does the personal use of a good deprive others of its use?

		Subtractability	
		Low	High
Exclusion	Difficult	Public goods Useful knowledge Sunsets	Common-pool resources Libraries Irrigation systems
	Easy	Toll or club goods Journal subscriptions Day-care centers	Private goods Personal computers Doughnuts

Figure 2. Type of Goods. Adapted from *Understanding knowledge as a commons: From theory to practice*, by C. Hess and E. Ostrom, 2011, p. 9.

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).

The idea of the commons has long been lumped together with that of common property. In reality, common property is only one aspect of property rights that can be exercised in a commons. Schlager and Ostrom (1992) identify five different property regimes that can coexist in a commons:

- Access rights, which defines the possibility of accessing the common-pool resource.
- Withdrawal rights, which defines the possibility of removing a part of the resource.
- Management rights, which defines the right to transform the resource and to organize the rules of its management.
- Exclusion rights, which defines the right to give or take away access, withdrawal, and management rights.
- Alienation rights, which defines the rights of sale or rental of the four preceding rights.

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. A 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.

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, in particular around culture (Bertacchini et al., 2012), the use of the Internet (Benkler, 1997), and knowledge (Hess & Ostrom, 2011). It is possible to give a general definition of commons as follows:

Commons is a general term that refers to a resource shared by a group of people. In a commons, the resource can be small and serve a tiny group (the family refrigerator), it can be a community-level (sidewalks, playgrounds, libraries, and so on), or it can extend to international and global levels (deep seas, the atmos-

phere, the internet, and scientific knowledge). The commons can be well bounded (a community park or library); transboundary (the Danube River, migrating wildlife, the Internet); or without clear boundaries (knowledge, the ozone layer). (Hess & Ostrom, 2011, pp. 4-5).

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 found to be present in all instances of success. The principles are as follows (Ostrom, 1990, pp. 90-102):

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 (take Polanyi’s (2000) example of the creation of enclosures in the 18th century as “a

revolution of the rich against the poor”). 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.

As regards “knowledge” as a resource, this explains movements such as Free Software⁶, 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. The more the knowledge resource is shared, the 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, 2008) and thus innovation (Von Hippel, 2005). As such, innovation within (and outside of) organizations seems increasingly based on a regeneration of social capital (Putnam, 2000; Rifkin, 2014) amplified by the digital, which enables the realization of communities functioning like commons and vitalized by the ideal of reciprocity (Dagnaud, 2016; Rifkin, 2014).

These collaborative practices 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, in order 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 a 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 VUCA environment.

From knowledge as commons to organization as commons

We have seen that the existence of the 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) in order 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 knowledge⁷ (to provide answers to the constant changes of a VUCA 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 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 organizations can operate in many organizational forms; using the commons (rather than a common good or a common-pool resource) as an interpretive framework allows us to find some unifying principles: collaborative functioning as a group, decision-making deliberation (consensual and/or democratic), autonomy, and trust. Here are some examples:

- Considering an organization as a collaboratively managed commons is nothing new; worker cooperatives, 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”⁸. These values are implemented according

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

7 See Benkler, 2002 and Brown & Duguid, 1991.

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

to seven principles⁹, 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 2014, there are over 2.5 million cooperatives in the world (United Nations, 2014). Communal governance, then, is far from marginal.

- The sociocratic mode of governance (Endenburg, 1998) is another example. Sociocratic governance originates in the practices of the religious and philanthropic Anglo-Saxon society, the Quakers. Their practices were implemented in a school in the Netherlands where Gerard Endenburg received his education, and when Endenburg took over his family's business in the 1970s, he undertook to adapt the mode of management to a sociocratic one. The approach is characterized by the implementation of specific rules of operation similar to those of a commons, whose features are: the sociocratic circle as a space for decision-making (the circle is the group of individuals united with the aim of realizing a clearly identified goal, which corresponds to the first principle of commons); consent (absence of objection motivated by valid arguments) as the mode of decision-making (third principle of commons); a double bond between two hierarchical levels (a circle is bound to its superior circle by two people, enabling strong coordination and recalling the 7th and 8th principles of commons); sociocratic election without nomination and by consent. Sociocratic principles are present in both for-profit and nonprofit organizations (Romme & Endenburg, 2006).
- A mode of governance following the rules of holacracy (Robertson, 2007) can also be comparable to a commons. In 2001, Brian Robertson and his colleagues created an IT company called Ternary Software with the idea of combining "lean" management (Holweg, 2007) with democratic governance. The organizational structure Robertson developed is based on autonomy, trust, transparency, self-organization, and special attention given to feedback loops. All this comes together to create a strong capacity for adaptation and an understanding of each individual's role in the whole (*holos* in Greek) of the organization. In 2010,

Robertson drafted the Holacracy Constitution¹⁰. The whole (*holos*) of the organization represents the commons, where everyone finds their role and interacts with the others in self-directed circles (inspired by the sociocratic approach).

- 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 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 agile management (Holbeche, 2015). It is also practiced by industrial firms such as FAVI (Zobrist, 2013), 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 (the company is ISO 9001, ISO TS 16949, ISO 50001, and ILO-OSH 2001 certified). Under the leadership of its director Jean-François Zobrist (2013), 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.

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

10 <http://www.holacracy.org/constitution>, consulted on June 26, 2016.

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 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.

Thus, a large number of organizational forms, both old (cooperative) and new (holacracy, etc.), promote collaboration, distributed responsibilities, and more transparency and trust. The question is one of reinventing organizations (Carney & Getz, 2009; Laloux, 2014). Indeed, the classic forms of organization traditionally based on the scientific division of labor (Taylor, 1911) have changed over several decades in order to adapt to an increasingly complex and volatile environment.

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 (Pink, 2011; 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 a VUCA environment. Take for example the case of Eisai, the 4th 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

In the era of the information society, of a VUCA world, building knowledge collaboratively appears indispensable to adapt to the rapid changes in our environment. Further, 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 (Surowiecki, 2004). The ability to freely exchange ideas (so as to build common knowledge that takes into account various points of view) goes 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 brief, it is a matter of presenting explicit inferences that other members of the organization may attempt to refute¹¹—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, 1986). Combining an approach to knowledge as a commons with an organization that operates as a commons (as has been presented in this paper, and which is summed up in Figure 1) enables organizational learning (Argyris, 1993; Senge, 2006), which in turn enables adaptation to a VUCA world.

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11 This relates to the principle of falsifiability that underpins the scientific approach as according to Popper (2002).

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