

## CHAPTER 2

# The Ontology of the Intellectual Commons

### 2.1. Introduction

In essence, the intellectual commons are social practices of both pooling intangible resources in common and reproducing the communal relations around these productive practices. They are related to terrains of mainly intellectual, as demarcated from those of chiefly manual, human activity. They are constituted as ensembles of power between contending social forces of commodification and commonification. In this respect, intellectual commons are formulated as crystallisations of the sublation of the opposing forces referred to above, subject to correlations of power both within their boundaries and in their wider social context.

This chapter formulates a processual ontology of the intellectual commons, by examining the substance, elements, tendencies and manifestations of their being. The first part of the chapter introduces the various definitions of the concept. Its second part focuses on the elements that constitute the totalities of the intellectual commons. Its third part emphasises their structural tendencies. Finally, the fourth and last part of the chapter deals with the various manifestations of the intellectual commons in the domains of culture, science and technology.

### 2.2. Definitions

The concept of the commons is today most commonly defined in connection to resources of a specific nature. In her seminal work, Ostrom conceives of the commons as types of resources – or, better, resource systems – which feature certain attributes that make it costly (but not impossible) to exclude

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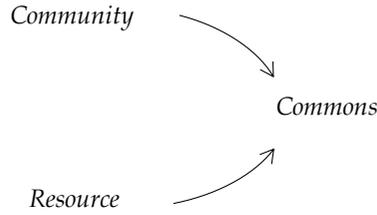
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potential beneficiaries from appropriating them (Ostrom 1990, 30). Hess and Ostrom thus broadly describe the commons as a resource shared by a group of people, which is vulnerable to social dilemmas (Hess and Ostrom 2007a, 4; Hess 2008, 37). Following the same line of thought in relation to intangible resources, the same authors stress the importance of avoiding the confusion between the nature of the commons as goods and the property regimes related to them (Hess and Ostrom 2003, 119). According to this approach, information and knowledge are socially managed as common pool resources owing to their inherent properties of non-subtractability and relative non-excludability. These two attributes of common pool resources make them 'conducive to the use of communal proprietorship or ownership' (Ostrom and Hess 2008, 332). Yet, resource-based approaches run the danger of reifying the commons and downgrading their social dimension.<sup>2</sup>

On the other hand, property-based definitions equate the social phenomenon of the commons with collective property in contradistinction to private and public property regimes (Lessig 2002b, 1788; Boyle 2008, 39; Mueller 2012). Indicatively, Derek Wall writes that the '[c]ommons can be seen as a particular category of property rights based on collective rather than state or private ownership' (Wall 2014, 6). In the intellectual realm, James Boyle labels the commons of the intellect 'property's outside' or 'property's antonym' (Boyle 2003, 66). Along the same lines, Jessica Litman considers that the intellectual commons coincide with the legal concept of the public domain, which she juxtaposes with intellectual property: 'The concept of the public domain is another import from the realm of real property. In the intellectual property context, the term describes a true commons comprising elements of intellectual property that are ineligible for private ownership. The contents of the public domain may be mined by any member of the public' (Litman 1990, 975).

Alternatively, relational/institutional approaches define the commons as sets of wider instituted social relationships between communities and resources. As Helfrich and Haas state, '[c]ommons are not the resources themselves but the set of relationships that are forged among individuals and a resource and individuals with each other' (Helfrich and Haas 2009). Linebaugh adds that '[c]ommons are not given, they are produced. Though we often say that commons are all around us – the air we breathe and the languages we use being key examples of shared wealth – it is truly only through cooperation in the production of our life that we can create them. This is because commons are not essentially material things but are social relations, constitutive social practices' (Linebaugh 2008, 50–51). Hence, according to relational/institutional approaches, the commons can be defined as 'a social regime for managing shared resources and forging a community of shared values and purpose' (Clippinger and Bollier 2005, 263) or even an 'institutional arrangement for governing the access to, use and disposition of resources,' in which 'no single person has exclusive control over the use and disposition of any particular resource'



**Figure 2.1:** Locating the commons.

Source: *Author*

(Benkler 2006, 60–61). In conclusion, relational/institutional approaches pinpoint that commons refer neither to communities nor to resources, but instead to the social relations and structures which develop between the two.

At an even higher level of complexity, processual definitions pinpoint the dynamic element of the commons. According to processual approaches, commons are defined as fluid ensembles of social relationships and sets of social practices for governing the (re)production, access to and use of resources. In contrast to resource-based or property-based definitions, the commons are not equated with given resources or to the legal status emanating from their natural attributes, but rather to social relations that are constantly reproduced (Bailey 2012). Furthermore, in contrast to relational/institutional approaches, the commons do not coincide with but are rather co-constituted by their institutional elements. According to the processual approach, the commons are a process, a state of becoming, not a state of being. Therefore, they could best be described as a verb, i.e. the process of ‘commoning’ (Linebaugh 2008, 50–51). Hence, in contrast to analytical definitions, processual approaches refer to the ontology of commoning not as a common pool resource but as the very process of pooling common resources (Bollier and Helfrich 2015, 76).

Nonetheless, the process of commoning is not only restricted to the (re)production of the resource. On the contrary, throughout this process the community itself is constantly reproduced, adapting its governance mechanisms and communal relationships in the changing environment within and outside the commons. According to such an ‘integrated’ approach, commoning should be viewed in its totality as a process that produces forms of life in common, a distinct mode of social co-production (Agamben 2000, 9).

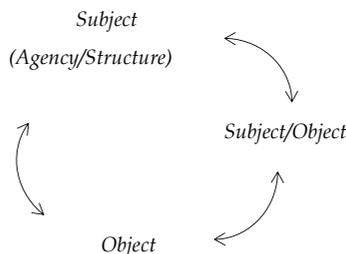
The intellectual commons are commons related to intellectual, instead of manual, activity and intangible, instead of tangible, resources. They refer to sets of social practices characterised by sharing and collaboration among peers in a community. Such practices extend from the stage of production up to the stages of distribution and consumption. At the stage of production, intangible resources are generated through peer sharing and collaboration and managed in an equipotential manner by communities of producers. At the stage of distribution, intangible resources are shared and used either openly or subject to

conditions, which primarily involve share-alike and/or non-commercial licensing. At the stage of consumption, the transformative use of intangible resources results in derivative works, which, depending on the licensing status of the original resource(s), are often shared under the same copyleft provisions, thus closing the virtuous circle of commons-based peer production.

The term 'intellectual commons' has been deemed more appropriate to represent the subject matter of this study, instead of other terms such as 'information' or 'knowledge commons' or even 'commons-based peer production'. On the one hand, terms, such as 'information' or 'knowledge commons' imply that the commons are conceived as resources, falling into the fallacy of reifying social relations. On the other hand, commons-based peer production does not refer to the commons themselves but rather to the mode of how the commons are reproduced through time. The term 'commons-based peer production' also implies that distribution and consumption do not fall within the scope of such reproduction. By contrast, the term 'intellectual commons' is grounded on a conception of the commons as social relations, in which human communities interrelate with intangible resources, the latter only being the object of such relationship. Most important, this term implies that intellectual activity is the source of value and the motivating force behind the reproductive cycle of the intellectual commons.

### 2.3. Elements and Characteristics

The intellectual commons are produced by the interrelation between their subjective and objective elements. The subjective element is twofold, consisting on the one hand of the collective actors and on the other hand of the communal structures of commoning. The objective element consists of the intangible resources that are used as input for commons-based peer production. The products of the sublation between the objective and subjective elements of the intellectual commons are again twofold. Obviously, practices of commoning yield more information, communication, knowledge and culture.



**Figure 2.2:** The elements of the intellectual commons.

Source: Author

| Characteristics | Elements                       |   |   |
|-----------------|--------------------------------|---|---|
|                 | Object (resource)              | Subject/agency (productive activity)                                | Subject/structure (community/institution) |
|                 | Non-excludability              | Non-monetary incentives   | Rules of self-governance                  |
|                 | Non-rivalry                    | Voluntary participation   | Communal ownership rules                  |
|                 | Zero marginal costs of sharing | Self-allocation of productive activity/consensus-based coordination | Access rules                              |
|                 | Cumulative capacity            | Self-management   | Communal values                           |

**Table 2.1:** The elements of the intellectual commons.

*Source: Author*

Hence, intangible resources are both object of the dialectical process and outcome of the sublation. This characteristic distinguishes the intellectual commons from other types of commoning. Yet, the dialectical process constantly reproduces and evolves itself, its social bonds being both medium and outcome of the process. Rather than being analysed as separate from one another, the objective and subjective elements of the commons should be viewed as forming an inseparable and integrated whole (Bollier and Helfrich 2015, 75).

As far as their objective element is concerned, the intellectual commons are primarily related to the (re)production of intangible resources, in the form of data, information, communication, knowledge and culture (Benkler 2006; Frischmann, Madison and Strandburg 2014, 3). Practices of commoning in relation to tangible resources are characterised by resource attributes of relative non-excludability and of rivalrousness (Ostrom and Ostrom 1977). In particular, the exclusion of individuals from the use of common pool resources through physical or legal barriers is relatively costly, and any resource units subtracted by one individual are deprived from others (Ostrom 1990, 337). As a corollary, such resources are susceptible to problems of congestion and overuse and can even be open to the risk of destruction, matters that have to be dealt with by commoners through sophisticated and adaptable governance technics, if commons upon these resources are to last and thrive. On the other hand, intangible resources have the status of pure public goods in the strict economic sense (Samuelson 1954). First of all, intangible goods share the attribute of non-excludability with common pool resources, only that in the case of the former such non-excludability is absolute rather than relative (Hess and Ostrom 2007a, 9). Furthermore, they are non-rivalrous in the sense that their consumption does not reduce the amount of the good available to others (Benkler 2006, 35–36). In addition,

information, communication, knowledge and culture have been known to bear a cumulative capacity (Foray 2004, 94; Hess and Ostrom 2007a, 8). In the words of Thomas Jefferson, 'one new idea leads to another, that to a third, and so on through a course of time until someone, with whom no one of these ideas was original, combines all together, and produces what is justly called a new invention' (Jefferson 1972, 686). According to this approach, the very process of creativity and inventiveness essentially involves standing on the shoulders of the intellectual giants of the past, as Newton famously confessed.<sup>3</sup> Finally, intangible resources enjoy near-zero marginal costs of sharing among peers, in the sense that the cost of their reproduction tends to be negligible (Arrow 1962, 623; Benkler 2006, 36–37). The partly intransitive attributes mentioned above, i.e. non-excludability, non-rivalry, zero marginal costs of sharing and cumulative capacity, which characterise the objective element of the intellectual commons, are not found in types of commoning based on tangible resources.

Regarding their subjective agency element, intellectual commons are reproduced according to a commons-based peer mode of intellectual reproduction, which significantly differentiates itself from the dominant mode, based on capital and commodity markets (De Angelis 2007, 36). Communal relations between peers are characterised by voluntary participation, the self-allocation of tasks and autonomous contribution to the productive process (Soderberg and O'Neil 2014, 2). Participation in the productive process is motivated less by material incentives and more through bonds of community, trust and reputation (De Angelis 2007, 190; Benkler 2004, 2016). Coordination is ensured 'by the utilization of flexible, overlapping, indeterminate systems of negotiating difference and permitting parallel inconsistencies to co-exist until a settleable behavior or outcome emerges' (Benkler 2016, 111–112). Eventually, such relations tend to be based on sharing and collaboration between commoners, who join their productive capacities together as equipotent peers in networked forms of organisation (Bauwens 2005, 1). Even though the degree and extent of control may vary, the productive process, available infrastructure and means of production tend to be controlled by the community of commoners (Fuster Morell 2014, 307–308).

In relation to their subjective structural element, the intellectual commons arise whenever a community acquires constituent power by engaging in the (re)production and management of an intangible resource, with special regard for equitable access and use (Bollier 2008, 4). In this sense, there can be no commons without a self-governing community. Rules of self-governance include both rules for the management of the productive process and rules of political decision-making. On the one hand, self-management rules determine the general characteristics of the mode of production/distribution/consumption of the resource, the choices over the design of the resource and the planning of the productive process, and the criteria for the allocation of tasks and the division of labour. On the other hand, political decision-making determines the collective mission or goal of the process, the membership and the boundaries

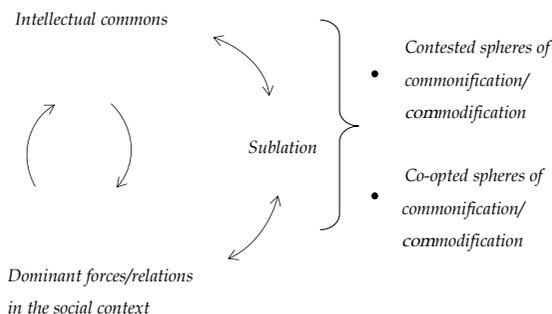
of the community, the constitutional choices over the mode of self-governance, the participation of individual commoners in the decision-making process, the interaction between commoners, the adjudication of disputes and the imposition of sanctions for rule violation. In addition, the intellectual commons are regulated by ownership and access rules. Ownership rules determine the property status of both the means of production and the resources produced. Access rules regulate the appropriation and use of resource units (Ostrom 1990, 32). Access can be open to all or managed and limited to certain individuals or usages (Mueller 2012, 42). Property rights are bundles of access, contribution, extraction, removal, management/participation, exclusion and alienation rights, thus conferring different types of control over resources vis-à-vis persons and entities other than their right-holder (Hess and Ostrom 2007b, 52). Contrary to the monolithic form of private or public property, ownership in the realm of the intellectual commons comes in multiple forms by taking full advantage of the nature of the institution of property as a bundle of rights. Ownership of communally managed and communally produced resources bestows the rights to regulate access and use. Access rules generally aim to sustain and guarantee the communal mode of resource management and to avert exhaustion through commodification. They constitute the constructed boundaries between the realm of the intellectual commons and the sphere of commodity markets. Hence, ownership and access in the intellectual commons are inextricably linked. Furthermore, the intellectual commons are established as communities of shared values, oriented towards communal cohesion and reproduction through time (Clippinger and Bollier 2005, 263). Values, such as reciprocity, trust and mutuality among peers, are not confined to one-to-one relations. Rather, they develop and are set in circulation both within and among commoners' communities. Communal values are very important for the well-being of the intellectual commons, since their circulation and accumulation contribute to the construction of group identities and the consolidation of reciprocal patterns of commoning. Yet, communal values within the sphere of the intellectual commons also function in contradistinction and as alternatives to circuits of dominant monetary values. There is an underlying confrontation between alternative and dominant value spheres, which is connected with practices of commoning and processes of commodification (De Angelis 2007). Intellectual commons communities reveal a wide diversity of institutional practices, which evolve through time in correspondence to the vulnerabilities to enclosure or under-production of the relevant resource and the social dilemmas faced by the community during the course of sustaining each specific commons (Hess 2008, 37).

As with any other type of social institution, intellectual commons control and, at the same time, empower the activity of their participants. Nevertheless, they significantly differ from state or market regulation of people and resources, since they constitute social spheres in which institutions are immanent in, rather than separate from, the reproduction of the community.

## 2.4. Tendencies

The commons of the intellect are fundamentally characterised by their orientation toward self-governance and open access to their productive output. Yet, in societies dominated by capital, intellectual commons unfold themselves neither as wholly open nor as entirely self-governed. Instead, openness and self-governance are tendencies that emerge from the essential properties encountered in the social relations of commoning. In particular, the degree of openness and self-governance in each community of commoners is determined by the specific outcomes of the dialectics between the intellectual commons and dominant forces/relations in each social context. In this view, institutions in the sphere of the intellectual commons are the result of the interaction between the intellectual commons and the objective conditions of their environment. Such a perspective also leaves ground for counter-influencing agency/structure dialectics between the resulting institutions in the sphere of the intellectual commons, their generative elements and their social context. Hence, in capitalism, structures of commoning are inherently contested and contradictory terrains of social activity, which are constantly reproduced in a non-linear manner on the basis of the dialectics mentioned above but also counter-influence their environment. Outcomes of the sublation between the intellectual commons and dominant forces/relations in the social context can be classified into two distinct spheres of reproduction: contested spheres of commonification/commodification and co-opted spheres of commonification/commodification.

The dialectics within the reproduction of the intellectual commons exhibit certain tendencies and counter-tendencies (see Table 2.2), which emanate from their essential characteristics and the essential characteristics of the wider social context. In particular, due to the attribute of non-excludability, intellectual commons are less vulnerable to ‘crowding effects’ and ‘overuse’ problems and relatively immune to risks of depletion (Lessig 2002a, 21). Therefore, practices of commoning in relation to intangible resources have



**Figure 2.3:** The dialectics of the intellectual commons.

Source: Author

| Characteristics of commoning (commons-based peer production)        | Tendencies (forces of commonification) | Sublation (subject/object dialectics)   | Counter-tendencies (forces of commodification) | Characteristics of commonification (capitalist mode of production) |
|---|--|---|--|--|
| Non-excludability   | Open access                            | Commonification ↔ commodification   | Monetized access                               | Enclosure  |
| Non-rivalry/zero marginal costs of sharing                          | Sharing                                | Pooling of common resources ↔ private accumulation of resources                               | Market allocation                              | Fixity   |
| Cumulative capacity/non-monetary incentives/voluntary participation | Collaboration                          | Commons-oriented relations of production ↔ market competition and oligopolies                 | Antagonism                                     | Monetary incentives  |
| Self-allocation of productive activity/consensus-based coordination | Self- and collective empowerment       | Self-management of the productive process ↔ hierarchical management of the productive process | Alienation                                     | Command  |
| Communal value sphere   | Circular reciprocity                   | Work in collaboration/waged labour  | Labour as commodity/exploitation               | Market value system  |
| Communal ownership  | Self-governance                        | Consensus-based decision-making ↔ hierarchical decision-making                                | Domination                                     | Private/state ownership  |

**Table 2.2:** Tendencies and counter-tendencies within the intellectual commons.*Source: Author*

the potential to be structured as open access commons on their demand side, i.e. ‘involving no limits on who is authorized to use a resource’ (Ostrom 1990, 335–336; Hess and Ostrom 2007b, 48). This of course does not happen in a deterministic manner but only on the condition that the relevant subjective forces of commonification effectively reinforce their corresponding tendencies. In such cases, the consumption of the resource is regulated as openly accessible to anyone. Examples of open access intellectual commons include our common cultural heritage and the public domain. Yet, intellectual commons are also subject to opposing forces in the social context, manifested in legal institutions and technological infrastructures of enclosure, which tend to socially construct information, communication, knowledge and culture as artificially scarce, to monetise access and, eventually, to commodify them (Hess and Ostrom 2007a, 5). Accordingly, the characteristics of non-rivalry and zero marginal costs of sharing observed in relation to intangible resources tend to encourage patterns of sharing among creators, which may result in the pooling of common resources, on the condition that forces of commonification are also set in motion. Conversely, institutions and technologies in the social context enable the fixation of intellectual works in the form of commodities and, thus, make them susceptible to market allocation and private accumulation (Cohen 2007, 1195). Sharing is a fundamental characteristic, which distinguishes commons from commodity markets or other systems of private resource accumulation (Madison, Frischmann and Strandburg 2010a, 841). Therefore, the degree of sharing tolerated by the sublation of the opposing tendencies mentioned above gives evidence about the degree of their relative independence or co-optation by market logic.

The dialectics that give birth to the sphere of the intellectual commons are framed by additional characteristics and tendencies, the social determination of which is even more extensive than the partly intransitive attributes of intangible resources. In particular, the importance of non-monetary incentives within the realm of the commons and the participation of commoners on a voluntary basis combined with the partly intransitive characteristic of the cumulative capacity of intangible resources weave relations within the productive process, which generate collaborative tendencies among peers. By contrast, the dominance of monetary incentives in the wider social context reproduces antagonistic relations. The countervailing tendencies mentioned above impact both the patterns of commoning within intellectual commons communities and the relations among them, pushing towards either commons-oriented peer relations of production or market competition, accumulation of market power and oligopolies. Furthermore, the characteristics of self-allocating tasks and consensus-based coordination in the productive practices of commoning promote the self- and collective empowerment of commoners. On the other hand, hierarchical command of labour in the productive practices, which dominate the social context, generates alienation of creative individual workers. The

sublation between the two juxtaposing spheres shifts the productive practices of the intellectual commons either towards self-management or towards hierarchical management. Intellectual commons should also be examined as alternative communal value spheres reproduced at the margins of dominant market value systems. Whereas markets circulate social power in the form of monetary values and labour in the form of commodity through decentralised bilateral transactions, communities of commoning are based on circuits of circular reciprocity among peers. Interrelations between the two value spheres generate relations of production within the intellectual commons, which may range widely between the two extremes of collaborative work among peers and exploited waged labour. Finally, the communal or private/state ownership of the infrastructure and means of commoning is critical for the degree of self-governance and domination encountered in each intellectual commons community and eventually determines its mechanisms of political decision-making, i.e. whether such mechanisms will be consensus-based or hierarchical. In conclusion, intellectual commons generally share the characteristics mentioned in the preceding section. Nonetheless, the extent and quality of those characteristics in each case of commoning are ultimately determined by the dialectics between forces and relations of commonification/commodification. Hence, the more an intellectual commons community dynamically transforms its practices and orients itself away from the contested to the co-opted sphere of commonification, the less extensive and qualitative its characteristics of open access, self-management and self-governance will be, and vice versa.

At the same time, the intellectual commons feature certain tendencies, which are attributed to their inherent characteristics, both objective and subjective. Compared to other types of commoning based on tangible resources, the tendencies of the intellectual commons towards open access, sharing and collaboration are also supported by partly intransitive characteristics. Hence, whereas in the general category of the commons these tendencies are produced solely on the basis of the subjective element, in the context of the intellectual commons they arise from a combination of their objective and subjective characteristics. Nevertheless, the establishment of either open access commons-based sharing and collaboration, or commodified spheres of intellectual activity based on private monopolies and antagonism or hybrid commonified/commodified social forms is ultimately a socially constructed outcome determined by the dialectics constituting the sphere of the intellectual commons vis-à-vis the sphere of commodity markets. They are related to tendencies and counter-tendencies that may be realised or remain unrealised. The intellectual commons embody the potential to unleash in full the creative and innovative powers of the social intellect, yet their future remains open, subject to struggles for social change within their sphere and in the wider social context.

## 2.5. Manifestations

Intellectual commons ascribe to practices of social reproduction in relation to primarily intellectual human activity. Intellectual work manifests itself in the form of data, information, communication, knowledge and culture.

Information refers to collections of data meaningfully assembled ‘according to the rules (syntax) that govern the chosen system, code or language being used’ (Floridi 2010, 20). It is a combination of data and intellectual work, which embodies human interpretation. Therefore, in order to be accessible and comprehensible, any assemblage and transformation of data into information must comply with a socially constructed and shared system of semantics. Furthermore, the process of assembling information by the pooling together of data is in itself based on patterns of sharing and collaboration. Since the accumulation of factual data and its collaborative assimilation into information constitute the foundation for knowledge production, robust commons of information are a precondition for all modes of intellectual production, distribution and consumption. The information commons include the vast realm of non-aggregated data and information, which has been collected, processed, accumulated and stored across history by humanity as a result of sharing and collaboration among many individuals. It also includes the aggregated data and information about nature, human history and contemporary society that has not been enclosed either directly or indirectly by virtue of patent, copyright and database laws or by technological means and, therefore, lies in the public domain.<sup>4</sup>

Knowledge is the assimilation of information into shared structures of common understanding (Machlup 1983). It is a social product generated on the basis of objects of a transitive dimension, i.e. prior knowledge produced by society, and objects of an intransitive dimension, i.e. structures or mechanisms of nature that exist and act quite independently of humans (Bhaskar 2008, 16). With the term ‘social’, reference is given to the fact that the production of knowledge is essentially a process of cooperation among several individuals which is structured in dynamic sub-processes of cognition, communication and cooperation (Fuchs and Hofkirchner 2005). The accumulated knowledge of mankind constitutes the intellectual basis of social life. The building blocks of human knowledge are produced and managed as commons, according to socially constructed rules that prohibit any kind of exclusionary conduct.<sup>5</sup> Hence, discoveries about physical phenomena and laws of nature, abstract ideas, principles and theories, and mathematical symbols, methods and formulae are managed as open access commons pooled together by the cooperative activity of the scientific community, past and present. All in all, the core of scientific knowledge is generally managed as commons, advanced through sharing and collaboration among peers in a community.<sup>6</sup> The knowledge commons also consist of technological inventions, which fall short of patentability, because they do not fulfil the criteria of novelty, non-obviousness/involvement of an inventive step,

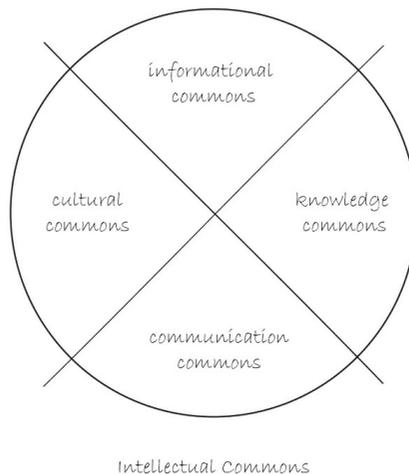
and social utility/susceptibility of industrial application. Broadly speaking, this includes the accumulated technological advancements of the greatest part of human history, i.e. inventions (i) that were conceived before the existence of patent laws, (ii) that were communicated to the public but have not been filed for patent protection by their inventors, (iii) whose patent rights have expired, or (iv) that have been invalidated by litigation. Furthermore, technologies in use, whether protected by private monopolies or not, lead to further innovation and invention though practices of maintenance, repair and modification shared among the communities of their users (Edgerton 1999, 120; Von Hippel 2005). In addition, the knowledge commons include all types of 'traditional knowledge'. The latter refers among others to the know-how, practices, skills and innovations developed within and among communities though patterns of sharing and collaboration in a wide variety of contexts, such as governance, agriculture, science, technology, architecture, arts and crafts, ecology, medicine and biodiversity (WIPO 2012). Finally, the development of packet-based electronic communication systems and advanced information technologies in the form of the internet and the World Wide Web have greatly facilitated the sharing of knowledge between peers along with commons-based peer modes of production based on collaboration.

Communication refers to a socialised process of symbolic interaction between human subjects, through which meaning is exchanged. Therefore, being more than the transmission of data, communication is in essence the social production of meaning that constitutes social relationships (Mosco 2009, 6, 67). The communication commons primarily consist of the assemblage of linguistic elements, which constitute our common code of communication. They also comprise any other form for the transmission of meaning between individuals, such as body techniques and patterns of behaviour (Mauss 1973; Williams 1983, 90; Sahlins 2013). Furthermore, the contemporary commons of communication include the natural and technological infrastructure of electronic communication networks, such as open spectrums and open standards. Overall, the common infrastructure of communication functions as the basis for the development of culture, which is also in itself a system of symbols.

Cultures are unities of symbolic systems reproduced by means of interpersonal human communication (Cuche 2001, 87). Culture includes the fundamental elements of socialisation that are necessary for life in common, i.e. the a priori of human society. It is essentially a socialised process based on sharing and collaboration and a collective project in constant flux. The cultural commons refer to shared ethical, moral, religious and other value systems (Mauss 1973; Williams 1983, 90; Sahlins 2013). They also include common traditions, habits and customs, religious or secular belief systems, interacting world views and shared conceptions about social life in general. In addition, the cultural commons consist of common aesthetic systems and styles, artistic and cultural techniques, practices, skills and innovations, along with artistic and

cultural expressions of folklore, such as folk art, arts and crafts, architectural forms, dance, performances, ceremonies, handicrafts, games, myths, memes, folktales, signs and symbols. Last but not least, when we talk about culture, we refer not only to its contemporary form but also to cultural heritage and collective historical narratives handed down from one generation to the next (Burke 2008, 25). The cultural commons therefore include the public domain. Intellectual works in the public domain, i.e. those not protected by copyright or unbundled from exclusionary private rights, include works created before the existence of copyright, those of insufficient originality for copyright protection, works whose copyright has expired or is otherwise inapplicable owing to invalidation by litigation, along with government works, works dedicated by their authors to the public domain and works that are licensed by their authors under conditions that are oriented towards open access.<sup>7</sup> De facto cultural commons, which develop beyond the boundaries of law, have also been facilitated by contemporary information and communication technologies through the unauthorised sharing or mixing of copyright-protected works in digitised environments.

Regardless of their form, data, information, communication or culture are manifestations of intellectual activity. In all cases where they are subject to communal modes of governance and shared access or lie in the public domain, such intangible resources fall within the intellectual commons. The latter encompass the totality of information, communication, knowledge and cultural commons of our societies. The intellectual commons are thus the general category of the commons, which embodies our collective and shared, past and present, intellectual activity in all its forms and manifestations.



**Figure 2.4:** The manifestations of the intellectual commons.

Source: Author

## 2.6. Conclusion

Intellectual commons are the great other of intellectual property-enabled markets. They constitute non-commercial spheres of intellectual production, distribution and consumption, which are reproduced outside the circulation of intangible commodities and money (Caffentzis 2013, 253). Yet, intellectual commons are not just an alternative to the dominant capitalist mode of intellectual production. On the contrary, they provide the core common infrastructures of intellectual production, such as language, non-aggregated data and information, prior knowledge and culture. In addition, they constantly reproduce a vast amount of information, communication, knowledge and cultural artefacts as common pool resources. It is the compilation of these intellectual infrastructures and resources with the productive force of the social intellect, subjected to the rule of capital, that constitutes the foundation of the capitalist mode of intellectual production. As De Angelis pinpoints, 'every mode of doing needs commons' (De Angelis 2007, 243). Capitalist modes of producing intellectual goods are inescapably dependent on the commons. Nonetheless, such dependence is not mutual. Forces of commonification can materialise their potential to unleash socialised creativity and inventiveness without the restraints of capital.

The current chapter has offered a processual ontology of the intellectual commons, not only by focusing on the essential elements and characteristics that constitute their being but also by elaborating on the tendencies and manifestations that form their becoming and reveal their social potential. The next chapter continues with the epistemological perspective of the intellectual commons. It elaborates on the main theories of the intellectual commons and their relation with capital. In combination, both chapters have the purpose of providing an integrated perspective of the subject matter of the book. Furthermore, the conclusions of these chapters are inextricably linked with the normative perspective of the intellectual commons, because they provide sufficient bases to ethically justify their protection and promotion as institutions with inherent moral value and beneficial outcomes for society.