Società Italiana degli Economisti

53ª RIUNIONE SCIENTIFICA ANNUALE
Matera, 18-20 ottobre 2012

FROM SPACE TO MILIEU: NEW ANALYTICAL TOOLS IN THE KNOWLEDGE ERA[°]

Augusto Cusinato

Department of Design & Planning in Complex Environments, Iuav University, Venice
e-mail: augusto.cusinato@iuav.it

Abstract

The idea that with the advent of ICTs we are entering a new techno-economic paradigm is quite a widely shared belief. What initially appeared to be the outcome of the industry's adjustment to the growing need for flexibility – "post-fordism" – is now viewed as having intrinsic original shape, and is increasingly referred to as the "knowledge economy". Questions arise, however, when it comes to outlining the peculiarities of this new condition. Leaving aside the diffused epiphenomenal notions of the knowledge economy, the paper suggests that its distinguishing and original character lies in the shift that is occurring within firms, at a pragmatic level, away from the predominance of the ontological attitude to knowledge and towards a more intense acquaintance with the hermeneutical approach. The paper investigates the consequences of this shift inside and outside the firm, by focusing on the spatial and institutional conditions which, at various scales, are needed to enhance the generative potential of places. The notion of *milieu* and more specifically, *knowledge-creating milieu* appears to fit this aim. Among other things, it entails an important move from a physical-passive to a topological-generative notion of space, with important implications for the institutional realm.

Key-words: Knowledge economy, Milieu
JEL classification: D83, O33, R11

---

1   Introduction

It is quite widely recognised that in the last two-three decades the economy has left the industrial paradigm, and entered a new one, which is increasingly labelled as the "knowledge economy"[1]. To explain this shift and the constituent features of the new paradigm, interpretations usually point to the dominant role ICTs and symbolic analysis have achieved within economic activity. While acknowledging these changes, this paper argues that the distinguishing and constituent element of the knowledge economy lies at a deeper level than the widespread recourse to ICTs and symbolic analysis by firms, and precisely in the recourse they make to a different although not utterly new notion of knowledge to improve creativeness and innovativeness: a conception which formed within the philosophical and aesthetical domains about a century before, and which seemed however to be destined to remain confined in those realms, and anyhow far away from the corporate realm.

The aim of this paper is to provide this hypothesis with (sufficiently) substantial arguments, by showing that (a) the "different notion of knowledge" (which will be defined in detail in the next section) has entered the firms' domain through the ICT revolution, so that this revolution can be seen as the triggering although not the decisive event of the paradigm shift; (b) firms have pragmatically adopted this notion of knowledge because of the higher potentialities it proves to have in enhancing creativeness and innovativeness compared with the standard notion (and practice) of knowledge; (c) some important factors and conditions for improving this generative power belong to socio-spatial domains. Thus, the final focus of this paper is on (a) the functioning of these socio-spatial conditions and the configuration they eventually assume as knowledge-enhancing devices; (b) differences that can occur in the devices themselves on different scales and finally, on the normative side, (c) possibilities of designing and governing them (in the sense of "governance").

The paper is organised as follows. The next section defines the content of the "new" notion of knowledge which we suggest has entered into corporate praxis, by seeking to identify its distinguishing features with respect to the conventional notion. Section 3 examines how this notion, which seemed to be doomed to stay confined within the philosophical and aesthetical domains, has, somewhat paradoxically, entered the corporate domain. Section 4 is devoted to pointing out some theoretical consequences that follow from the establishment of the new knowledge paradigm inside corporate praxis. More specifically, the notions of "Knowledge-creating Services" "and Knowledge-creating Milieu" are introduced as categories which prove to be particularly fruitful in dealing with the knowledge economy, from both the analytical and the normative points of view.

---

[1] The first reference to the rising of the "knowledge economy" was made by Drucker (1968), although on a different epistemological prospect than the one which is proposed here.

2   **About knowledge**

Knowledge is a notion that is hard to define. Since it is intimately related to individuals' minds, any concept they may formulate about it is actually fused with their mental and cultural reference models so it becomes easy for them to fall into cognitive traps, such as fallacies, naiveties and other pre-analytical views (Coe, Wilden, 1978; Watzlawick, 1980). With this caveat, knowledge can be broadly defined as the system of plausible beliefs the individuals and groups have about reality; at the same time, however, account must be taken of the fact that, precisely because it is a matter of belief, there is inevitably a certain degree of approximation between the mental images of reality they form and the reality itself.

The key epistemological issue therefore is (and has always been) how to assess the degree of approximation to reality which is inherent in knowledge. In contemporary western thought, two main epistemologies compete with regard to this point, the ontological (or modern) and the hermeneutical (or post-modern). The former is based on both the Cartesian belief that truth exists *per se*, and the positivist belief that subjects can reasonably assess the convergence of their mental representations to it through empirical testing under controlled conditions.

Post-modern criticism has originated precisely from the confutation of the positivist belief in the possibility of having a reliable criterion for assessing the approximation to truth. This criticism ultimately maintains that the device positivists have conceived for excreting any residual metaphysical element from the scientific domain is actually grounded on a pre-analytical and indefensible assumption. As von Glasersfeld (1980) argues, certain aspects that would be determinant in rejecting false assertions can indeed be systematically ignored in making empirical tests because of a fallacy – a sort of scotoma – in the observer's perceptive aptitudes.

From this point onward, truth does indeed become a conventional entity (once it is admitted that such a term maintains some relevant meaning), and the cognitive focus shifts from searching for it by collecting information about *the* supposed "real reality" and the consequent getting of *the* genuine cognitive code – *the* truth –, to observing the mental processes by which subjects form their perceptual aptitudes (and mainly fallacies) (Gadamer, 2004). This does not mean however that investigation of the real world should be abandoned because it proves to be without any sound epistemological foundation: since a certain – although intrinsically "weak" – representation of reality is needed for action, the only alternative to nihilism is to make a continuous shuttle between the image of the reality the subject has built at a certain moment through his mental repertoire, and which he knows to be inevitably contingent, and the representation of the processes which lead to the formation and reshaping of mental repertoires (and cognitive codes).

As is well-known, this shift in focus from information "coming" from or "collected" in the external world to the process of formation of perceptive aptitudes and cognitive codes signals the entry into post-modern thought, and entails the passage from one notion of knowledge to another. Once admitted that any cognitive experience implies reflexivity, it is indeed one thing to reflect on the external world without questioning the inherent properties and caveats of one's own interpretative code, and quite another thing to make a (certainly demanding) mental effort in investigating one's own way of observing that world itself. These two kinds of knowledge respectively refer to the ontological and the hermeneutical approach. According to this view, Nonaka and Takeuchi (1995) distinguish between "Learning I", "[which] is obtaining know-how in order to share specific problems *based upon existing premises*", and "Learning II", "[which] is establishing *new premises* (i.e., paradigms, schemata, mental models, or perspectives) to override the existing ones" (p. 44; emphasis ours)[2].

The shift from the one to the other notion of knowledge is particularly relevant as regards creativity because, while admitting that it stems from the recombination of existing elements in a new and useful way (Poincaré, 1908), recombination can occur at two very different levels, depending on whether or not the reference set of elements includes the cognitive code(s). While in the ontological approach the recombination concerns the information drawn from reality according to the best approximation to the true code the subject supposes is at his disposal, and takes the form of a problem-solving task (Guildford, 1967), in the hermeneutical approach creativity is conceived as the outcome of the exposure of the subject's own interpretative code to confrontation with other codes, and first results in problem-finding or else problem-creating experiences (Runco, 1994). This entails, among other things, recourse to different sociologies of creativity. In the first case, the subject *creates* by establishing a direct relationship between his mind and the external world, maybe in a solipsistic way, and society intervenes mainly by endowing him with a convenient cognitive code (Schon, 1983); by contrast, in the second case social relationships play a crucial role, because it is only through them that the subject can experience differences in cognitive codes.

It is however worth noting that *Learning II* is not alternative but complementary to *Learning I*. No-one can indeed completely neglect the practical relationships he necessarily has to establish with the real world, by devoting himself to the contemplation of the relationships occurring between his perceptual aptitudes and cognitive code. To avoid the risk of alienation / annihilation that is inherent to such an attitude, the subject has thus to make an incessant shuttle between the two forms of learning, by assimilating the external world according to the provisionally available cognitive code he has at his disposal, acting according to that code, evaluating the outcomes of action and *questioning the cognitive code itself,* and in some cases, if necessary reshaping it (Piaget, 1967).

---

[2] An analogous distinction is made by Morin (1986), who distinguishes between "knowledge" and the "knowledge of knowledge".

With these premises, the next section is devoted to an examination of how the *Learning II* paradigm has entered the corporate firm and industry at large as a strategic praxis, thus giving rise to the knowledge economy.

3   The rise of the knowledge economy

If the distinguishing and constituent feature of modern civilisation is the mission that human beings confer upon themselves to behave as "the lords and possessors of nature" (Descartes, 1637), without any other limit than those imposed by the right use of reason and respect of moral and positive norms, the entrepreneur is the very champion of modernity. At best he embodies the ambition of continuously reshaping reality – potentially, any domain of reality, the mind included – in order to gain advantage (and gratification) in a competing world. The enterprise is the venture he continuously fuels to fulfil this ambition: a venture that entails creativeness and innovativeness, that is to say the conception and implementation of new ways of making / combining things[3]. And the firm is the organisational device he sets up – this is the basic innovation he makes (Schumpeter, 1911) – to design and implement innovations away from prying eyes and indiscreet ears.

On this view, the entrepreneur's basic resource is a flair for seizing opportunities and assessing risks, which requires a clear representation of the state of affairs. This means that the primary skill he must have is mastery of a reliable cognitive code (obviously the one that *he* believes to be reliable) which allows him to make right choices quickly, and above all, more quickly than competitors. With these requirements, *Learning I* appears to be the fit cognitive paradigm for him, because it focuses on the relationship between mind and the external world on the assumption that the current cognitive code is the best one at disposal[4].This does not mean however that the entrepreneur did / does not have also recourse to *Learning II*, because everyone makes conscious or unconscious use of this way of learning. It means rather that he considers this recourse as lateral (De Bono, 1970), somewhat incidental compared with *Learning I*: a sort of philosophical digression to which he can have sometimes usefully resort to gain fresh but also potentially destabilising views on things.

If this is a plausible representation of the epistemic background of the representative western entrepreneur, the question arises as to whether and how the *Learning II* paradigm has not only entered the corporate praxis, but gained the central place within it. At a first glance, one might suggest that the shift of focus brought about by postmodern thought – from the relationship

---

[3] According to Schumpeter (1911), the specific entrepreneur's role is to innovate since the act of creating / inventing can be analytically distinguished from the implementation of a new idea, and conferred to another figure (the inventor). However, the question is whether innovativeness can actually proceed separately from creativeness, once considered that the implementation of a new idea entails problem-finding and problem-solving activities in the relational domain, and this requires an equally important aptitude for creativeness on the entrepreneur's part.

[4] For a vivid representation of this view, see Schon (1983).

between *the* cognitive code and the external world, to the process by which codes take form within the subject's mind – would eventually contaminate the domain of the firm, mainly via management turnover. This is a plausible sight, but on condition that the new notion of knowledge actually proves to be more suitable than the previous one in achieving the firm's goals, namely success in market competition.

In this connection, we argue that the achievement of this condition has been the main outcome, among others, of the advent of ICTs. More precisely, the hypothesis is that this advent, with the dramatic reduction in the cost of processing and transmitting information it has made possible[5], has had not only functional consequences – such as the spectacular dissemination of information technology, the reorganisation of corporate firms (also in spatial terms) and the comprehensive readjustment of markets on a global scale – but also significant consequences at the structural level: a level that relates to issues which, within a given techno-economic paradigm, lie outside the decision-makers' field of choice, such as social relations or the re-setting of boundaries between the firm and the society.

To understand the nature and implications of these structural changes, it is expedient to examine what has occurred within the communication circuits inside the corporate firm with the advent of ICTs. Before that advent, but also in the short interval of informatics-without-telematics, communication necessarily required the intervention of the human factor, since the monitoring of automatic devices, based as they were on electro-mechanical technology, only worked in an analogue / local way, without any possibility of their being integrated into a complete motoring system at the firm level (and, *a fortiori*, more broadly too). For example, how could a mechanical counter communicate with a mercury thermometer and, at the same time, let us suppose, with a chemical colorimeter or a budget item? The role of Humans was just to make communication possible at the firm level in those constrained conditions, by translating (in the double sense of interpreting and transferring) the signals that were emitted by the different monitoring devices (human devices included) according to their specific and different languages.

However, this unavoidable human intervention meant that communication at whole was exposed to ambiguity, since individual interpretative codes are idiosyncratic, not to mention that ambiguity can be also opportunistically produced (Cusinato, 1996). It follows that even the most peripheral agent had at his disposal a power to condition the performance of the system, since he was able to affect communication, albeit at an infinitesimal level (Marcuse, 1964; Lyotard, 1979). It also becomes clear that, in such a situation, most of the top management's care was devoted to establishing accurate protocols for minimising the ambiguity content within the communication circuits (Sennet, 2006): an effort that could not (and cannot) however fully attain its goal, not so much because of the increasing marginal cost of ambiguity cutting, as an approach *à la* Shannon would suggest, but because, inasmuch

---

[5] Between 1980 and 2010, the "Cost of Hard Drive Storage Space" fell from about 200,000 US$ to 10 cents per Gigabyte (-62% a year). Source: http://ns1758.ca/winch/winchest.html (Accessed May 2012).

as the principal makes such an effort, the agents can be induced to produce additional ambiguity, in order to maintain their degree of discretion.

This also makes it possible to understand why, within the electro-mechanical paradigm, the typical corporate firm assembled all productive phases within the same plant, the factory: if technical indivisibilities can explain the large dimension of plants, the proximity between the different and technically divisible parts and phases of the productive process met the need, on the functional side, to reduce ambiguity and, on the strategic side, to prevent the formation of free-riding within the communication circuits.

The advent of ICTs has wholly upset this scheme. The now occurring possibility of fully integrating the peripheral monitoring devices into a unique "syntactic"[6] network thanks to a generalised recourse to digital language, has rendered unnecessary the intervention (and the connected power of mediation / interposition) of the human component in the codified communication circuits. This has made possible an unprecedented disembedding of syntactic / "monological" communication circuits from the previously single circuit, within which this kind of communication was inextricably entwined with the human / "dialogical" communication.

This material separation between the monological and the dialogical circuits has entailed crucial consequences inside corporate firms and industry in general. Firstly, the closeness between the human factor and the routinised activities is no longer necessary, and the latter can from then on be left to automata, except for the overall monitoring activities. Secondly, routinised activities become potentially foot-loose, except where there are technical indivisibilities. The major consequence consists however in the chance firms have to exploit the creative potentialities of dialogical communication and specifically ambiguity, once this kind of communication no longer interferes with the monological circuits. This means that the firm now has the opportunity deliberately to adopt the practices – or rather the pragmatics – of *Learning II*, thus displacing its focus from the "mechanical" production of goods, including innovation, in the way it is conceived by *Learning I* and conventional "knowledge management" (cf. McAdam, McCreedy, 2000) –, to the handling of those conditions that are suitable for generating "vision[s] to create something new" (Audretsch, Thurik, 1998, p. 23).

A displacement of borders is also occurring between corporate firms and society as a whole. During the *mechanically* "managed economy" (ibid.), the issue of learning and, above all, learning about learning (Morin, 1986) normally fell within the socio-cultural domain, and only laterally touched the firm, at the top management level. When *Learning II* is taken into consideration as a strategic activity, boundaries with the socio-cultural domain become weaker and permeable: rather, they become a new action-field for the firms themselves (Sacco, Dragone, 2006). In fact, for as long as learning is understood as an accumulation of information according to a given interpretative code, it implies high externalities, and for this

---

[6] The term is drawn from Nonaka, Takeuchi (1995).

reason it is not well suited to the firm (Arrow, 1962). But when it is considered from a hermeneutical view, it proves to be highly place-specific, in that it makes substantial use of ambiguity, which stems from personal idiosyncrasies: thus, not only learning, but culture, intended as the aptitude for interacting with interpretative codes (Geertz, 1973), becomes a primary resource for enhancing creativeness within corporate firms and organisations (Lash, Urry, 1994; O'Connor, Wynne, 1996).

With these premises, we (among others) argue that the rise of the knowledge economy has occurred (and is still occurring) through the *internalisation of Learning II practices into firms, and more generally industry, as a core strategic activity* (cf. Nonaka, Takeuchi, 1995; Houghton, Sheehan, 2000; Rullani, 2004; Lytras, Sicilia, 2005).

4   Corollaries

The shift of focus from *Learning I* to *Learning II* that is occurring within firms and industry in general entails important consequences for the analytical and normative domains. Relationships between things, agents and concepts shift considerably, so that meanings which were conventionally associated with some categories change, categories that were central within the previous paradigm become obsolete, while others arise and require to be analytically defined. Let us examine some of these consequences.

4.1 Knowledge-creating Services (KCS)

It is widely recognised and empirically evident that with the advent of ICTs a sudden increase has occurred in specialised services which act as providers of high-skilled competencies in dealing with the formation, storage, shaping and transmission of knowledge, as well as in training firms to deal with these issues (OECD, 1996; EFILWC, 2005). A number of theoretical approaches have been developed to account for the rise of this kind of activity and the role they play in enhancing the competitiveness of firms as well as local and regional systems. Methods have also been designed to detect these activities statistically and to measure their volume within the economic system. These approaches obviously reflect the peculiarities of different interpretations of knowledge and its role in the economic system, so it seems expedient to undertake an assessment of their suitability with regard to the *Learning II* paradigm.

Two main approaches are briefly recalled below: the "Knowledge-intensive Business Services" (KIBS) approach and the "Creative Industry" (CI) approach. The results of the examination can be anticipated, by arguing that these solutions only partially meet the requirement of depicting the specificity of *Learning II*-based or -related activities, just because they refrain from distinguishing between the ontological and the hermeneutical

notion of knowledge, and stay implicitly inclined towards the first notion. The view they subsume of the knowledge economy, as based on a large if not dominant role of intellectual workers – "those who do not engage in the output of physical goods" (OECD, 1996, p. 10; in the same sense, Foray, 2000) –, makes it clear that these approaches remain implicitly neutral with respect to the pragmatic dimension, inside which *Learning II* takes form and relevance. According to Miles *et al.* (1995), KIBS are "services that involve [...] economic activities which are intended to result in the creation, accumulation or dissemination of knowledge" (p. 18). This approach seems therefore to be appropriate to render the specificity of knowledge-oriented activities. Learning and knowledge are however interpreted in a conventional way, respectively as the acquisition and mastery of information, while no explicit attention is paid to how cognitive codes form and evolve: knowledge is acquired (rather than experienced), accumulated (rather than articulated), recombined (rather than hybridised), disseminated (rather than compared with), applied and finally empirically tested (rather than epistemologically criticised). Also the acknowledged centrality of the conversion of tacit knowledge into codified knowledge in enhancing innovation does not consider the fact that this kind of experience provides an extraordinary opportunity for dealing with idiosyncrasies in cognitive codes and having access to the pragmatic / hermeneutic dimension of knowledge. Consequently, KIBS include the generality of business activities devoted to symbolic analysis (according to Reich, 1992), independently of whether they pertain to the application or rather the generation of cognitive codes, and when codes are implicitly considered, the key concern is to refine rather than articulate them. KIBS thus embrace executive activities such as "Press distribution agencies", "Maintenance and repair of office, accounting and computing machinery" besides genuine knowledge-creating activities, such as "Research [in the various domains]" and "Business and management consultancy activities" (figure 1); on the other side, they leave out public entities, like universities, which are clearly devoted to dealing with cognitive codes, and which normally interact with industry in knowledge-creation (Etzkowitz, Leydesdorff, 2000).

On its part, the CI approach focuses on "those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (DCMS, 2001, p. 4). Its main peculiarity is that it takes into consideration the entire value chain, from the conception of a potential innovation to the manufactures and the retail shops where "creative goods" are respectively produced and sold to final consumers. The key question is how this approach selects the "very" creative value chains from the entire set of other possible chains, once it is admitted that creativity is present in any productive chain. The response given by the CI approach is not convincing, because it assumes a pure formal criterion, which consists in the appropriability of the creative act, through patenting (Howkins, 2002). Many other activities that are creative without being susceptible to being patented (such as many kinds of daily

research and consultancy outcomes) are then omitted, whereas others that are not intrinsically creative (such as, emblematically, "Retail sale of secondhand goods") are included because they belong to a value chain deriving from a patentable creative activity. To avoid these limits and render the peculiarities of *Learning II*-based activities, we propose the notion of "Knowledge-creating Services" (KCS), which are services that are expressly devoted "to working with" cognitive codes, by recombining and reshaping them rather than recombining information on the basis of a given (supposed) code (table 1 and figure 1).

Compagnucci and Cusinato (2011) examine this approach in detail and contribute an empirical investigation of the Italian case. The main result which is worth mentioning here is that KCS prove to have a close spatially interrelationship with industry and are highly city-oriented. Considering that the manufacturing industry has left the city and, moreover, that neo-marshallian Industrial Districts have risen as an alternative to the urban pattern of industrialisation (Becattini, 2009), important issues arise when the spatial and functional relationships between the city and the "newly-urbanised and industrialised countryside" is examined in the knowledge era.
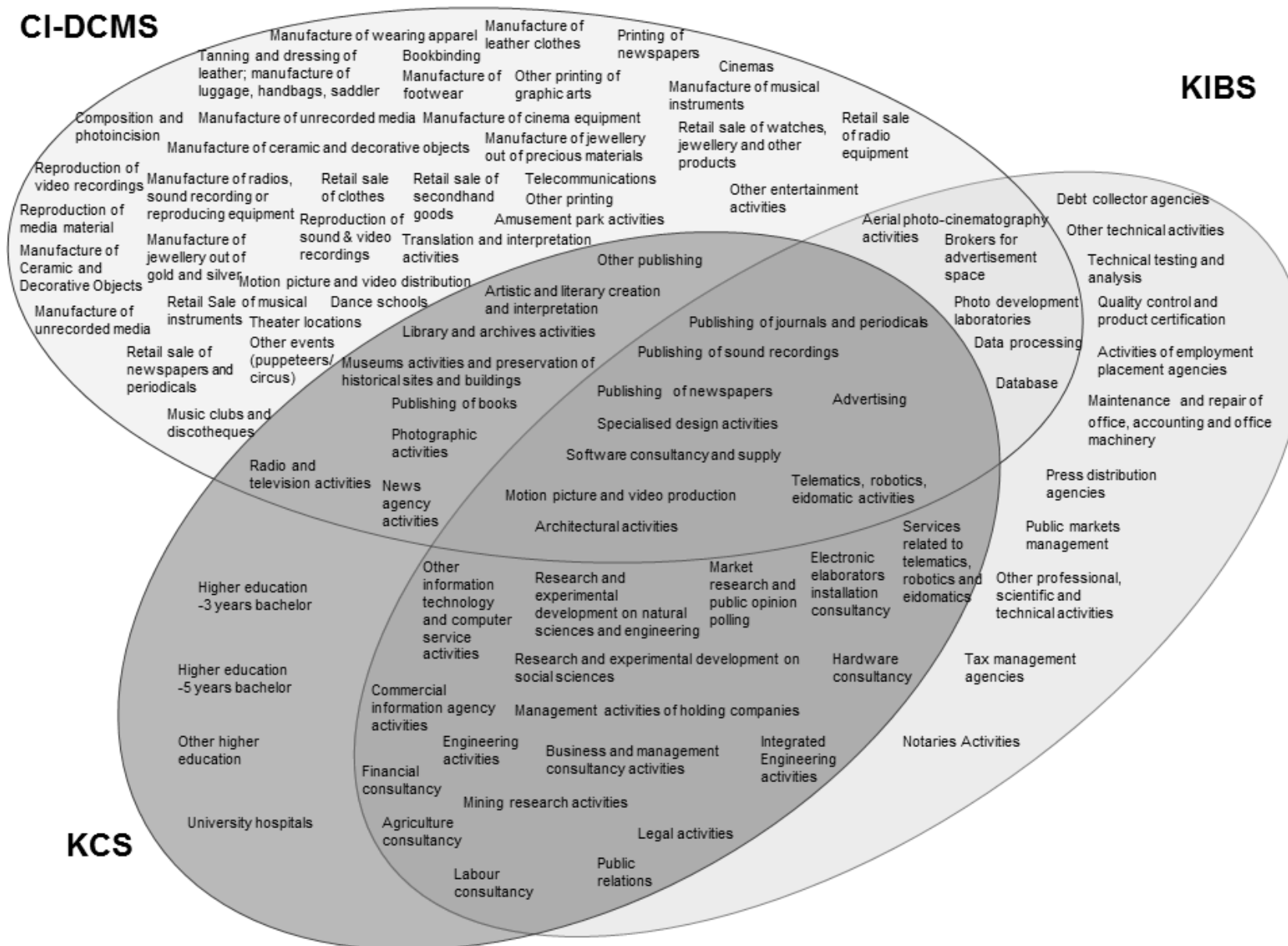
Table 1 – Classification of Knowledge-Creating Services (KCS)

Code[1]	Description	Code[1]	Description
		Private	
22110	Publishing of books	74145	Public relations
22120	Publishing of newspapers	74146	Commercial information agency activities
22130	Publishing of journals and periodicals	74150	Management activities of holding companies
22140	Publishing of sound recordings	74201	Architectural activities
22150	Other publishing	74202	Engineering activities
72100	Hardware consultancy	74203	Integrated Engineering activities
72200	Software consultancy and supply	74204	Aerial photogrammetry and cartography activit.
72601	Telematic, robotics, eidomatic activit.	74205	Mining research activities
72602	Other computer-related activities	74401	Advertising
73100	Research and experimental development in natural sciences and engineering	74111	Legal activities
73200	Research and experimental development in social sciences	74811	Photographic activities
74130	Market research and public opinion polling	74845	Designers
74141	Financial consultancy	92110	Motion picture and video production
74142	Labour consultancy	92200	Radio and television activities
74143	Agrarian consultancy	92310	Artistic and literary creation and interpretation
74144	Business and management consultancy activities	92400	News agency activities
		Public	
92510	Library and archive activities	80303	Other higher education
80301	Higher education- 3-year first degree course	85114	University hospitals
80302	Higher education-5-year first degree course	92520	Museum activities and preservation of historical sites and buildings

[1] Istat, Ateco 1991.

CI-DCMS

KIBS

KCS

Manufacture of wearing apparel

Manufacture of leather clothes

Printing of newspapers

Tanning and dressing of leather; manufacture of luggage, handbags, saddler

Bookbinding

Cinemas

Manufacture of footwear

Other printing of graphic arts

Manufacture of musical instruments

Composition and photoincision

Manufacture of unrecorded media

Manufacture of cinema equipment

Retail sale of watches, jewellery and other products

Retail sale of radio equipment

Manufacture of ceramic and decorative objects

Manufacture of jewellery out of precious materials

Reproduction of video recordings

Manufacture of radios, sound recording or reproducing equipment

Retail sale of clothes

Retail sale of secondhand goods

Telecommunications

Other entertainment activities

Debt collector agencies

Reproduction of media material

Other printing

Other technical activities

Reproduction of sound & video recordings

Amusement park activities

Aerial photo-cinematography activities

Technical testing and analysis

Manufacture of Ceramic and Decorative Objects

Manufacture of jewellery out of gold and silver

Translation and interpretation activities

Other publishing

Brokers for advertisement space

Quality control and product certification

Motion picture and video distribution

Artistic and literary creation and interpretation

Publishing of journals and periodicals

Photo development laboratories

Manufacture of unrecorded media

Retail Sale of musical instruments

Dance schools

Library and archives activities

Publishing of sound recordings

Data processing

Activities of employment placement agencies

Theater locations

Retail sale of newspapers and periodicals

Other events (puppeteers/ circus)

Museums activities and preservation of historical sites and buildings

Publishing of newspapers

Database

Advertising

Maintenance and repair of office, accounting and office machinery

Publishing of books

Specialised design activities

Music clubs and discotheques

Photographic activities

Software consultancy and supply

Press distribution agencies

Radio and television activities

Motion picture and video production

Telematics, robotics, eidomatic activities

News agency activities

Architectural activities

Services related to telematics, robotics and eidomatics

Public markets management

Higher education -3 years bachelor

Other information technology and computer service activities

Research and experimental development on natural sciences and engineering

Market research and public opinion polling

Electronic elaborators installation consultancy

Other professional, scientific and technical activities

Higher education -5 years bachelor

Research and experimental development on social sciences

Hardware consultancy

Tax management agencies

Commercial information agency activities

Management activities of holding companies

Other higher education

Engineering activities

Business and management consultancy activities

Integrated Engineering activities

Notaries Activities

Financial consultancy

Mining research activities

University hospitals

Agriculture consultancy

Legal activities

KCS

Labour consultancy

Public relations

11

4.2 Ambiguity

In the common sense, noise is a disturbance to reception of a signal. It is considered as the effect of an interference or entropy in the transmission of the signal, which distorts it compared with a normal and expected, although highly unlikely form. Already in this common sense, it appears clear that the notion of noise necessarily goes with that of code, be this of a sensitive, syntactic or semantic kind. Only by possessing a code, can the receiver discern between familiar and unfamiliar, correct and incorrect, meaningful and not-meaningful, expected and unexpected signals.

The status of noise becomes much more multifaceted however when intelligent systems are taken into consideration, that is systems that are able to shape interpretative codes, within certain margins which assure their internal consistency, just in order to give sense to signals that would be otherwise interpreted as noise, and hence ignored or rejected. This clearly opens the prospect to the third dimension of knowledge (and language) beyond the syntactical and the semantic ones: the pragmatic dimension, within which *Learning II* actually lies. When considered from this perspective, the "amount" of noise that occurs on the syntactical or semantic level can be divided into two parts: a part that is potentially susceptible to being integrated as new information into the subject's interpretative schemes through a process of adaptation of those schemes themselves (Piaget, 1967), and another that is not susceptible to integration: while this latter part remains *noise*, the first gives rise to that realm of the human experience which lies in the uncertain terrain between noise and information, that is *ambiguity* (Empson, 1930).

Ambiguity thus turns out to be the prerequisite – the "raw material" – for learning (Visser, Visser, 2004). An ambiguity which appears as noise, and therefore a "bad", when it is seen from the information-science point of view, but becomes a basic and maybe irreplaceable good when approached pragmatically (Monod, 1980). The crucial question then arises about the conditions that enhance the subject's aptitudes *for converting noise into ambiguity*, which are ultimately the aptitudes for reshaping interpretative codes to make room for new and unexpected cognitive elements (Butera, 1997). Making reference to the seminal Durkheim's notion of milieu (Durkheim, 1895), but also to the notion of "milieus of creativity" introduced by Meusburger *et al.* (2009), we label this system of generative conditions as "knowledge-creating milieu", that is a socio-spatial device that that has the capacity to produce original "social facts" – in the case under examination, variants in interpretative codes – thanks to the concurrence of both subjective and structural conditions.

4.3 The general structure of a knowledge-creating milieu

For *Learning II* to occur, the subject must be competent in perceiving differences within the properties of cognitive codes. This entails that he is able to move aside from his mental schemes, by admitting that other schemes are possible and that the (relative) hybridisation with the one he currently makes use of might allow the creation of original and unexpected relationships between things, agents and concepts: namely, cognitive innovation (Lane, Maxfield, 2005). It is not our task here to examine what psychological conditions foster aptitudes for fulfilling such a generative experience and how they achieve it, so we have confined ourselves to an examination of what and how external conditions (with respect to the mind) play such a role.

To a first approximation, such conditions entail the intervention of three interrelated (and in certain circumstances, interchangeable) devices: (a) a generator of "cultural noise"[7], which can be an individual, a social group or the society at large; (b) an interpreter, which is an intelligent device inclined to consider noise as expression of underlying although unknown cognitive codes, and (c) a noise regulator – which can be of a physical and/or institutional nature – which allows the interpreter to decide how much / how long to expose himself to noise in order not to succumb to it. Let us examine two main ideal-types of knowledge-creating milieus, in order to highlight how structural and functional features (spatial features included) change depending on the scale of the milieu itself and how they work in enhancing *Leaning II aptitudes*: the dialogical milieu and the city[8].

4.3.1 The dialogical context as the elementary form of knowledge-creating milieu

From a purely epiphenomenal point of view, dialoguing people exchange words in a reciprocal and repeated way. Since words are signifiers which serve to convey meanings, it is reasonable to suppose that people intend to exchange meanings when exchanging words, and that the exchange is reputed advantageous for (and by) them both. This pure referential intendment is fully realised when the people concerned have recourse to the same interpretative code, correctly codify and de-codify their reciprocal signals, and the channel faithfully transmits them; otherwise a margin of misunderstanding – ambiguity – forms.

---

[7] "Cultural noise refers to impediments to successful communication between people of different cultures [or sub-cultures, we add]. Sources of cultural noise include differences in language (e.g., the same words have different meanings), values (e.g., importance of being on time or setting work schedule times in a culture), non-verbal cues (e.g., interpretation of body language), and many others" (O'Connell, 2004).
[8] Another typical kind of knowledge-creating milieu is the firm (Nonaka, Takeuchi, 1995). On a wider scale, Compagnucci, Cusinato (2011) make an attempt to see the territorial systems as knowledge-creating milieus.

This image clearly belongs to the *Learning I* approach, and renders a simplified and somewhat caricatural depiction of a dialogical experience. When seen with the *Learning II* perspective, the image is completely reversed. The presupposition for a dialogical experience to take place is indeed that the involved people admit the idiosyncratic character of their respective cognitive codes, and start dialoguing just to ascertain the peculiarities of these codes through the ambiguities they give rise to when speaking about shared experiences.

The real "referent" of a dialogical condition is in fact the differences between the interpretative codes of dialoguing people, and though they appear to be exchanging words and meanings, dialoguing, they are actually exchanging margins of ambiguity, that is noise which they believe to be susceptible of interpretation by reshaping their own cognitive codes. The primary condition for an individual to form an aptitude for dialogue – and therefore for dealing with cognitive codes – therefore lies in offering to share with others his own cognitive code – his mind –, and "betting" on the reciprocation of the other(s) (Godbout, Caillé, 1993).

It follows that a dialogical experience belongs to the wider category of positive reciprocation, with the rules of which it has to comply to be effective: words are gifts and not merely signs; they are precisely symbols, in that they stand for a "signified", namely ambiguity, which *relates* to other symbols and signifieds, and also relates to the parties' aim to create and nourish a *relationship*, from which they hope to gain a surplus in terms of sense.

Some circumstances, entailing spatial implications, may improve the generative potentiality of a dialogical experience, such as:

a. the subjects' capacity to suspend urge. This means that parties must have at their disposal (or also create) a shared mental space inside which the urge to get, to understand or to act – any urge– is toned down and moulded into a wish or, better, the evocation of a wish. Since physical space has a high symbolic content, in that it serves in a steady and public way to represent, i.e. institutionalise, the image a community, a group and individuals give themselves of themselves, the presence of physical spaces and their arrangements in ways that allude to the condition of staying aside the space of daily concerns, may induce people to form a propensity towards relaxation and dialogue;

b. an aptitude for giving. Since positive reciprocity requires the making of gifts in order to establish fruitful and durable relationships, the spatial arrangement must also transmit the idea that the parties have at their disposal a protected area, within which gifts (words, in the case under examination) are not exposed to the risk of being pillaged or offended[9]. A sense of sacredness is then required to be evoked by that physical space, to symbolise the shared belief and will that an area of intimacy exists within everyone and also among the dialoguing parties, which are considered untouchable by each and everyone entering that physical space;

---

[9] On the practice of establishing "sacred spaces" for making exchanges in riskly conditions, see Polanyi *et al.* (1957).

c. respect for silence. Since in a dialogical experience parties make gifts of words, words themselves have to be respected and also patiently hoped-for, as occurs within the emblematic experience of the "silent trade" (Curtin, 1984). This entails that silence − one's own and that of others − is not only respected but also appreciated (Rovatti, 1992);

d. the physical proximity of parties is also an essential condition for fostering dialogue. Inasmuch as the parties expose themselves reciprocally to the direct view of the other(s), they make clear that they are wholly and unreservedly involved in the experience of reciprocal exchange;

e. finally, to avoid the risk of entropy, the space of dialogue must be cautiously open to the external world, and induce guests to make a mental shuttle between the two. Voices, buzz and also noise coming from the external world must enter that space, albeit in a softened way, as a reminder that the dialogical experience is a temporary and precious suspension, and not a refuge from daily *social* life.

To sum up, the structural features of a dialogical milieu consist in (a) the concurrence of two or more (but not too many, with respect to the requisites of reciprocation) dialoguing individuals, which meet on a voluntary basis, act according to schemes of reciprocity and alternately work as both ambiguity-generating and sense-extracting devices, and (b) the intervention of a moderating device which is made in turn by (b1) the binding rules of reciprocity in exchanging words, that is the respect of the other's words as well as pauses and silence, and (b2) a suitable arrangement of spaces (the inner space to any dialoguing individual, the common space among them, the outer space and the softened connection with it), which works as a symbolic apparatus in evoking the conditions of proximity but also respect between the involved subjects, the (relative) suspension of daily concerns and the possibilities of generating variants in interpretative codes.

4.3.2 The city as a knowledge-creating milieu[10]

The idea that the city is a cognitive milieu − in the generative Durkheimian sense − entered economic thought through the work of Jean Rémy. According to him, the city is distinct from similar socio-spatial formations because it gives rise to specific economic outcomes, and particularly to the production of "certains types de connaissance" (Rémy, 1966, p. 72). As to the ways through which this process takes form, Rémy provided at that time a version which was affected by a notion of knowledge lying at the crossroads between the syntactic (or informational) and the pragmatic dimension. On the one hand, he made room for the pragmatic dimension, by noticing that the city-milieu is characterised not only by the large amount of information it is able to process (the city is not a computer!), but mainly by the heterogeneity of sources and recipients. The concurrence of these two elements − a large

---

[10] This section is partially drawn from Cusinato (2007).

amount of information and the heterogeneity of users – facilitates, in his view, the reciprocal fecundation between the different visions which form within the forcedly circumscribed infra-urban milieus, *giving rise to common ways of seeing things*. On the other hand, however, he did not come to conceive the rise of those common visions as the formation of new interpretative codes and, even less, to conceive learning as the outcome of a dialogical relationship between codes, but as the union of some visions which find the opportunity for integrating their partial repertoires in reciprocal contact.

The issue of the heterogeneity of interpretative codes has been finally dealt with by Rémy, Voye (1992), from an urban-ecological perspective: "L'ailleurs pénètre la ville", they maintain, not only from the outside, but also and systematically from the inside, "d'autant plus que s'accroissent le volume et l'hétérogénéité de la population" (pp. 44 and 45). It follows that, in a context of generalised anonymity, cultural niches emerge, "où, plus souvent que des sommes d'activités individuelles on trouve les activités collectives les plus disparates et les plus susceptibles de se développer dans la marginalité, l'illégalité [...] et donc de susciter un sentiment de curiosité et de mystère" (ibid., p. 45). Thus, the city becomes a milieu, and more precisely a "*milieu of milieus*" (Rémy, 2000b), made of sub-systems which generate local cultural codes and continuously produce variants in them, thanks to a number of relations they necessarily establish and nourish among them and with the external world.

The process by which the heterogeneity of codes turns into a cognitive resource is now described in a different way from the early Rémy (1996). The contacts between the infra-urban milieus do not merely entail integration between the respective cognitive repertoires, but give rise to "un «pool» d'informations indéterminées [... dont] on ne connaît pas à l'avance le contenu pertinent, ni même la personne capable de le formuler" (Rémy, 2000b, p. 37). Although Rémy does not say so explicitly, this kind of contacts produces noise, and it is just in the points of contact, of partial and also occasional overlapping, "à première vue peu compatibles" (ibid., p. 38), that opportunities for exploration occur, as premises for learning.

Unlike in dialogical contexts, relationships within the city are however generally impersonal and involuntary, and heterodoxy rather than discipline is the very engine of shifts in cognitive and more widely cultural codes (Redfield, Singer, 1954). Moreover, the device by which new cognitive and cultural codes spread among people is not reciprocity (which is an institutional device) but emulation (which is a socio-behavioural device) and ambiguity is no longer a club good as it is within a dialogical context, but a public good (in its raw form of noise). As a consequence, the city can be considered as a "natural" noise-generating milieu, in comparison with the artificiality (in the sense of artificially / intentionally made) of a dialogical milieu.

The real problem at stake thus becomes how to perceive this noise as a potential vector of original information (about codes), and how to exploit it as a resource for creativeness and innovativeness. Both these processes entail the intervention of a third party, who may also come from the same urban people, but has to be able to play the role of a meta-observer with

respect to the noise-generative device (Atlan, 1979). More precisely, recourse is required to a chain of highly specialised figures, the first and the last links of which are respectively the cool-hunter and the "post-modern" entrepreneur: the former, who is able to perceive those variants in cultural-behavioural codes that are suitable for economic exploitation (Klein, 2000), and the latter, who is able to turn the suggestions coming from the borders and mediated by the cool-hunter into new and highly symbolic-content goods (Schmitt, 1999; Ferraresi, Schmitt, 2006). Between these two figures, a number of other figures intervene, giving rise to the so-called creative class (Florida, 2002): designers, engineers, psychologists, information and computer technicians, advertisers, publicists, and many others, who have in common the ability to deal with interpretative codes, that is *Learning II*.

This suggests that the smaller the milieu is in scale − essentially, in volume and space −, the more it acquires the features of an artefact, and conversely, the larger it is, the more it appears to be a social and, in some way, a "natural" device with respect to the subjects involved. Investigations into the rate of artificiality and naturalness of milieus at the different scales seem therefore to be a crucial step for ascertaining the functioning of these socio-spatial devices, and, on the normative side, for assessing what room for manoeuvre exists, what policies should be adopted, and by whom they should be implemented, to improve their generative potentialities.

5   Conclusions

The key role knowledge now plays in fuelling creativeness and innovativeness and, consequently, in enhancing competitiveness is widely recognised, to such an extent that what had been initially epitomised as the post-industrial or post-fordist era is now increasingly referred to as the "knowledge era". Although this shift in labelling the present condition is extremely useful because it signals a recognition of the existence of a break with the industrial era − in the sense that the new techno-economic condition involves some genuine constituent traits − a crucial question arises about the appropriateness of the notion of knowledge that scholars, above all, generally make use of in approaching this issue. The suspicion is that they are resorting to an obsolete notion of knowledge − the "modern" or ontological notion, though this may sound paradoxical − whereas the corporate firm and the social praxis as a whole are turning to the post-modern or hermeneutical approach to knowledge.

The paper has explored the grounds for this claim by providing a reconstruction of how the representative firm would have moved, on the pragmatic level and as consequence of the advent of ICTs, from the ontological towards a hermeneutical approach to knowledge. Once this change of perspective is also assumed on the theoretical level, crucial consequences follow in both the theoretical and normative domain. The significance and the genetic process of innovation radically change, from being viewed as the outcome of a problem-solving

activity within a certain cognitive condition to an emergence stemming from a reflective experience on cognitive codes. Similarly, ambiguity turns to be a good rather than a "bad", as it is seen in the conventional cognitive approach.

The issue of ascertaining the factors and conditions (spatial and institutional conditions included) that at various scales foster the generation of ambiguity and its transformation into creative aptitudes appears then to be of the greatest importance to understanding the intimate substance of the knowledge economy and to governing (in the sense of governance) its dynamics. This paper has devised and discussed two analytical tools which seem to be suitable for those aims: the notions of "knowledge-creating services" and "knowledge-creating milieu". Further theoretical efforts along with and empirical investigations are needed to substantiate this issue.

References

Arrow K. J. (1962), Economic Welfare and the Allocation of Resources for Invention. in National Bureau of Economic Research, *The Rate and Direction of Inventive Activity: Economic and Social Factors*. Princeton (N.J.): Princeton University Press, 609-626.

Atlan H. (1979), *Entre le cristal et la fumée*. Paris: Editions du Seuil.

Audretsch D. B., Thurik A. R. (1998), *The Knowledge Society, Entrepreneurship and Unemployment*. Zoetmeer: EIM.

Becattini G. (2009), *Ritorno al territorio*. Bologna: Il Mulino.

Butera F.M. (1997), Lo sviluppo della città: un processo di autorganizzazione pilotato, in Bertuglia C. S., Vaio F. (eds.), *La città e le sue scienze. Volume I. La città come entità altamente complessa*. Milano: Franco Angeli, 155-174.

Coe M. R., Wilden A. (1978), Errore, *Enciclopedia Einaudi*. Torino: Einaudi. Volume 5, 682-711.

Compagnucci F., Cusinato A. (2011), Industrial Districts and the City: Relationships in the Knowledge Age. Evidence from the Italian Case, *Working Papers No 365*, Università Politecnica delle Marche (I), Dipartimento di Scienze Economiche e Sociali. Available at http://econpapers.repec.org/RePEc:anc:wpaper:365.

Curtin Ph. D. (1984), *Cross-Cultural Trade in World History*. Cambridge: Cambridge University Press.

Cusinato A. (1996), Heuristics Between Cognitivism and Connectionism: the Merging of a 'Third Best Level' in Problem Solving, in Belussi E., Cecchini A. (eds.), *Artificial Worlds and Urban Studies*. Venezia: Daest, 25-52.

Cusinato A. (2007), Da agglomerazione a milieu: l'interpretazione della città nell'economia urbana, a partire dai manuali pubblicati in Italia, *Scienze regionali* 6,3 (special issue), 41-65.

DCMS (2001), *Creative Industries Mapping Document 2001*. London: Department of Culture, Media and Sport.

De Bono E. (1970), *Lateral Thinking: Creativity Step by Step*, New York: Harper & Row.

Descartes R. (1659 [1637]), *A Discourse of a Method for the Well Guiding of Reason, And the Discovery of Truth in the Sciences*. London: Thomas Newcombe. Available at http://www.munseys.com (Accessed December 2010).

Drucker P. (1968), *The Age of Discontinuity*. London: Heinemann.

Durkheim E. (1895), *Les règles de la méthode sociologique*. Paris: Alcan.

EFILWC – European Foundation for the Improvement of Living and Working Conditions (2005), *Sector Futures - The Knowledge-intensive Business Services Sector*. Dublin: European Monitoring of Change Centre, European Foundation. Available at: http://www.emcc.eurofound.eu.int/publications/2005/ef0559en.pdf. (Accessed February 2011).

Empson W. (1930), *Seven Types of Ambiguity*. London: Chatto & Windus.

Etzkowitz H., Leydesdorff L. (2000), The Dynamics of Innovation: from National Systems and ''Mode 2'' to a Triple Helix of University–Industry–Government Relations, *Research Policy*, 29, 109–123.

Ferraresi M., Schmitt B. H. (2006), *Marketing esperienziale. Come sviluppare l'esperienza di consumo*. Milano: Franco Angeli.

Florida R. (2002), *The Rise of the Creative Class*. New York: Basic Books.

Foray D. (2000), *L'économie de la connaissance*, Paris: La Découverte.

Gadamer H.-G. (2004 [1960]), *Truth and Method*. London: Continuum International Publishing Group.

Geertz C. (1973), *The Interpretation of Cultures*. New York: Basic Books.

Glasersfeld E. von (1980), An Introduction to Radical Constructivism, in Watzlawick P. (ed.), *The Invented Reality: How Do We Know What We Believe We Know? Contributions to Constructivism*. New York: Norton & Co., 17-40.

Godbout J., Caillé A. (1993), *L'Esprit du don*. Paris: La Découverte.

Guilford J. P. (1967), *The Nature of Human Intelligence*. New York: McGraw-Hill.

Houghton J., Sheehan P. (2000), A Primer on the Knowledge Economy, *CSES Working Paper No. 18*. Melbourne: Centre for Strategic Economic Studies, Victoria University of Technology.

Howkins J. (2002), *The Creative Economy: How People make Money from Ideas*. London. Allen Lane.

Klein N. (2000), *No Logo*. London: Flamingo.

Lane D. A., Maxfield R. R. (2005), Ontological Uncertainty and Innovation, *Journal of Evolutionary Economics* 15 (1), 3-50.

Lash S., Urry J. (1994), *Economies of Signs and Spaces*. London: Sage.

Lyotard J.-F. (1979), *La condition postmoderne*. Paris: Les Editions du Minuit.

Lytras M. D., Sicilia M. A. (2005), The Knowledge Society: A Manifesto for Knowledge and Learning, *International Journal of Knowledge and Learning*, 1, 1/2: 1-11.

Marcuse H. (1964), *One Dimensional Man: Studies in the Ideology of Advanced Industrial Society*. Boston: Beacon Press.

McAdam R., McCreedy S. (2000), A Critique of Knowledge Management: Using a Social Constructionist Model, *New Technology, Work and Employment*, 15, 2: 155-168.

Meusburger P., Funke J., Wunder E. (2009) (eds.), *Milieus of Creativity: An Interdisciplinary Approach to Spatiality of Creativity*. New York: Springer.

Miles I., Kastrinos N., Bilderbeek R., den Hertog P., with Flanagan K., Huntink W. (1995), Knowledge-intensive Business Services: Their Role as Users, Carriers and Sources of Innovation, *Report to the EC DG XIII Sprint EIMS Programme*, Luxembourg.

Monod J. (1970), *Le hasard et la nécessité*. Paris: Editions du Seuil.

Morin E. (1986), *La méthode. III. La connaissance de la connaissance/1*. Paris: Editions du Seuil.

Nonaka I., Takeuchi H. (1995), *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford: Oxford University Press.

O'Connell J. (2004), Cultural Noise, *The Blackwell Encyclopedia of Management*. New York: John Wiley and Sons Ltd. Volume 6.

O'Connor J., Wynne D. (eds.) (1996), *From the Margins to the Centre: Cultural Production and Consumption in the Post-Industrial City (Popular Culture in the City)*. Aldershot: Ashgate.

OECD (1996), *The Knowledge-based Economy*. Paris: OECD.

Piaget J. (1967), *Biologie et connaissance*. Paris: Gallimard.

Poincaré H. (2010 [1908)]), *Science and Method*. New York: Cosimo.

Polanyi K., Arensberg C. M., Pearson H. W. (1957), *Trade and Market in the Early Empires: Economies in History and Theory*, Glencoe (Ill.): The Free Press.

Redfield R., Singer M. B. (1954), The Cultural Role of Cities, *Economic Development and Cultural Change*, 3,1: 53-73.

Reich R.B. (1992), *The Work of Nations: Preparing Ourselves for 21st Century Capitalism.* New York: Vintage.

Rémy J. (2000a [1966]), *La Ville: phénomène économique*. Paris: Anthropos.

Rémy J. (2000b), "Villes et milieux innovateurs. Une matrice d'interrogations", in Crevoisier O., Camagni R. (eds.), *Les milieux urbains: innovation, systèmes de production et ancrage*. Neuchâtel: IRER, 33-43.

Rémy J., Voye L. (1992), *La ville: vers une nouvelle définition?* Paris: L'Harmattan.

Rovatti P. A. (1992), *L'elogio del silenzio*. Milano: Cortina Editore.

Rullani E. (2004), *Economia della conoscenza. Creatività e valore nel capitalismo delle reti*. Roma: Carocci.

Runco M. A. (1994), *Problem Finding, Problem Solving, and Creativity*. Norwood (N.J.): Ablex Publishing Co.

Sacco P. L., Dragone D. (2006), Il futuro dell'Economia della cultura. Ovvero: come e perché l'economia si sta "culturizzando", in De Martin S., Sacco P. L. (eds.), *Il Cultural planning: principi ed esperienze*. Roma: Carocci.

Schmitt B. (1999), Experiential Marketing: A New Framework for Design and Communications*, Design Management Journal* (Former Series), 10, 2: 6-79.

Schon D. (1983), *The Reflexive Practitioner: How Professionals Think in Practice*. New York: Basic Books.

Schumpeter J. A. (1934 [1911]), *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. New York: Oxford University Press.

Sennet R. (2006), *The Culture of the New Capitalism*. London: Yale University Press.

Visser J., Visser Y. L. (2004), Ambiguity, Cognition, Learning, Teaching, and Design, *TechTrends: Linking Research & Practice to Improve Learning*, 48, 1: 40-43.

Watzlawick P. (ed.) (1980), *The Invented Reality: How do We Know About What We Believe We Know? Contributions to Constructivism*. New York: Norton and Co.