

The foundations of innovation in modern societies: the displacement of concepts and knowledgeability

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Received: 26 June 2012 / Accepted: 10 January 2013 / Published online: 21 February 2013
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Abstract Our paper offers a contribution to the growing literature on the sociology of innovation rather than the still dominant economic theory of innovation. We suggest that innovation first and foremost represents a process of cognitive displacement whereby existing metaphorical frameworks are reconstituted to account for new phenomena in a process that changes both the metaphor's and the new phenomenon's compositions. We suggest that integral to this process is *knowledgeability*, or a bundle of social and cognitive competencies that emerge as one of the main prerequisites for innovative thinking. We conclude by examining the most important social and cognitive competencies that structure the possibilities for invention and innovation in the contemporary knowledge economy.

Keywords Cognitive capacities · Displacement of concepts · Innovation · Knowledge economy · Knowledgeability · Metaphorical extension

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Writing in the tradition of the historical school, Sombart ([1916] 1921: 21–22) claimed that *every* economic system has a form of organization, a technique, and a mental attitude. Of these attributes of the economic system, the unique set of attitudes toward economic life at different times, for example the principles of acquisition, of competition and of economic rationality of the capitalist system, are among the most important. We are not proposing that the contemporary knowledge-intensive economy¹ has such a *unique leading idea*;² a leading idea that would allow one to readily identify *the historically distinctive mental traits* of the knowledge-based economic order. Nor can it be said that knowledge-based economic systems have a *unique* form of *organization or technique*. However, like Sombart, as well as Max Weber, we argue that culture and cognition generally make a considerable difference in economic affairs (for a recent statement see Kaasa and Vadi 2010), and that they play a decisive role in shaping innovation. In this paper we offer a theory of the capabilities, capacities, and skills that are important for innovativeness in a knowledge-based economy.

The importance of culture and cognition grows as we move away from industrial toward a knowledge-intensive economic order. Our claim is that certain cognitive and social capabilities not only tend to be more common in knowledge-based economies but that they operate as a mental prerequisite for creativity, the initiation of innovations and their implementation, and therefore the comparative advantage of nations. We are asking what specific orientations, competencies, and characteristics must a person or collectivity have in order to be innovative or to take innovative ideas from her environment on board, taking for granted that institutions provide important conditions for the possibility of innovations (cf. Moldaschl 2010: 1).

We see our contribution to the innovation literature as a contribution to the sociology of innovation in distinction to the now dominant economic theory of innovation (cf. Godin 2010). We diverge from economic literature (cf. Antonelli et al. 2006) in the vein of Dosi (1984: 88–89), for example, who, in the field of industrial innovation, sums up the conditions for the possibility of technological innovation in market economies as best described and served by the dual conditions of technological opportunity *and* the private appropriability of the benefits of the innovative activities. The *commitment* of private firms to innovation (in contrast to the capability to be innovative) is, of course, undeniably linked to their ability to temporarily appropriate the benefits of marginal additions to new knowledge as a result of learning [as David (e.g. 1999) stresses] and therefore the *economic*

¹ Neither knowledge societies nor knowledge-based economies are necessarily historically new phenomena. There have been knowledge societies in the past (see Stehr 1994: 5–32), similarly, economies have been knowledge-intensive in the past (cf. Antonelli et al. 2006: 211). However, the general significance of knowledge in contemporary societies has risen considerably. In the economy, knowledge now rivals more conventional factors of production such as property and labor.

² These observations do not preclude, however, that the supposedly typical rational attitude toward economic conduct found in liberal-capitalist economies may not change and develop. It is possible that we are witnessing, at the present time, an increasing “moralization of the market.” Economic processes and products are more and more judged based not merely on purely rational premises but with reference to ethical convictions. Such a moralization of the market with respect to the products of biotechnology, for example, would represent such a transformation in the attitudes typical of the capitalist “spirit” (cf. Stehr 2000, 2008; Stehr and Adolf 2010).

advantages that may accrue from the control over novel knowledge (see also Geroski 1995). We are stressing that in addition to these *necessary* technical, organizational, legal, geographical (territorially embedded) and economic factors, cultural and cognitive prerequisites also condition the possibility of invention and innovation.

The social process of innovation does not follow consistent patterns. In the case of innovation pathways, we are dealing with rather fragile social processes, ones that are riddled with disappointment, and ones that do not lend themselves to exact planning and prognostication (cp. Latour 1993; Gibbons et al. 1994).³ We are going to advance our argument about the importance of particular cognitive and social competencies for innovation in a number of steps. First, we will address the notion of innovation itself and argue that we do not have a general theory of innovation, last but not least because the concept of innovation is, as it were, all encompassing. We shall also make the point that the distinction between invention and innovation proposed by Schumpeter [1911] 1934) in his 1911 seminal volume *The Theory of Economic Development* is rather difficult to sustain in a consistent manner. Second, in light of the broad notion of innovation as, in the end, any kind of change, we will focus on the idea that innovation represents a process of cognitive displacement whereby existing metaphorical frameworks are reconstituted to enable and account for new phenomena in a process that changes both of the metaphor's and the new phenomenon's compositions. Next, we suggest that the phenomenon *knowledgeability*, or a bundle of social and cognitive competencies, emerges as the main foundation for the potential of innovative thinking. We conclude by examining the most important social and cognitive competencies that structure the possibilities for invention and innovation.

1 Innovation and the displacement of concepts

Indeed innovation has become one of those 'big words,' as Clifford Geertz may have put it, and joined the likes of grand concepts such as democracy and knowledge. It is a word that is frequently invoked but difficult to define. It carries strong normative connotations, and routinely meets with approval and partiality when it is used. To put it more formally, the term innovation typically performs the speech-act of commending what it tries to describe (cf. Sartori 1968; Broman 2002: 5). While it is difficult to separate normative from analytical elements in the case of the concept of innovation, the most common conception refers to the successful implementation of a novel idea. Separating the genesis of a new idea (invention) from its practical realization (innovation), however, can be a complicated endeavor, we suggest (cf. Beckenbach and Daskalakis 2010).

It is poignant that the idea of innovation plays such a central role in much of our contemporary political discussion about the economy, the wealth of nations, and the competitive advantages of societies while we appear to be unable to arrest and fence

³ As John (1998: 205) shows, in a study of the evolution of American communications, "the most fundamental technical breakthroughs—electric signaling in the 1840s, voice transmission in the 1870s—emerged in *highly unusual contexts* that provide few obvious lessons for students of innovation today (emphasis added)."

in the notion of innovation itself. The notion of innovation in the sense of novelty is also contained in such concepts as social change, development, evolution, mutation, creation, growth, imitation, invention, modernization, revolution, progress, discovery, and so on. In other words, there cannot possibly be a general theory of innovation since this would amount to a theory of life itself (Moldaschl 2010: 9). The concept of innovation refers to processes, namely change or novelty that is at least as universal as its opposite, namely routine or habitual conduct.

In fact, most social contexts and the vast majority of social action are characterized by nothing more than routine attributes and habitual conduct. Using a term the French sociologist and anthropologist Gabriel Tarde introduced, most human action is based on *imitation*. As an aside, habitual action has of course the constructive function of stabilizing human conduct, enhancing the predictability of social action and opening up avenues free from the pressures and constraints to act. Whether or not habitual conduct or imitation is always a carbon copy of previous social conduct (in that limited sense all conduct is a modification of previous conduct) is not at issue, what is at issue is the overwhelming constraint in social life to repeat and therefore get on with life.⁴ Nonetheless, within a historical perspective ranging across the centuries, the volume and the speed with which modifications of social conduct occur has of course accelerated with the dawn of the industrial society.⁵

If one desires to talk sensibly about innovation, one must proceed with a *relational* understanding.⁶ For example, if one wants to account for technical innovations, one does not need a theory of technology since technology only

⁴ For as Durkheim ([1912] 1965: 479) perceptively observed: “Life cannot wait” (cf. also Gehlen [1950] 1988: 296–297). In their discussion of expertise and how expertise may be justified, Collins and Evans (2002: 241) advance similar observations about the essential difficulties encountered in the public domain if one would have to wait for expert advice: “Decisions of public concern have to be made according to a timetable established within the political sphere, not the scientific or technical sphere; the decisions have to be made before the scientific dust has settled, because the pace of politics is faster than the pace of scientific consensus formation.”

⁵ As Godin (2008: 23–4)—in a history of the concept of innovation—points out: ‘Novation’ is a term that first appeared in law in the thirteenth century. It meant *renewing* an obligation by changing a contract for a new debtor. The term was rarely used in the various arts before the twentieth century... In fact, as with imitation and invention, innovation was pejorative for a while. Until the eighteenth century, a ‘novator’ was still a suspicious person, one to be mistrusted.”

⁶ For Joseph Schumpeter innovations become a central, if not the main component, of the dynamics of economic action. For example, innovations are seen to be more important than is price competition among firms. According to Schumpeter ([1942] 1962: 132), pioneering entrepreneurs who “reform or revolutionize the pattern of production by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, by opening up a new source of supply of materials or a new outlet for products, by reorganizing an industry,” are at the center of the dynamics of the capitalist system. In Schumpeter’s usage, innovations refer to the initial introduction of a new product (thus, product innovation) or system and process (hence, process innovation) into the economy. Although Schumpeter’s terminology extends to organizational and managerial innovations, most of the subsequent analyses carried out in economics that pertain to innovations have concentrated on technical innovations or innovations that relate to artifacts. Since Schumpeter makes a sharp distinction between invention and innovation, it becomes evident that his notion of innovation refers not merely to the fabrication of additional knowledge but to incremental knowledge that has been translated into practice (hence practical knowledge) and results in a new product or process. An invention as additional knowledge (or conceptual invention) is knowledge as defined here, namely, a capacity for action.

evolves in the context of society and not by itself. However, what would be required is a socio-economic theory of technical innovation. Such a theory would refer to a combination of factors such as the creativity of social action, economic incentives, and institutional conditions (or, on a smaller scale, social or action networks) that enhance technical innovativeness (cf. Moldaschl 2010: 14).

In the case of Joseph Schumpeter's theory of social change within firms, the yeast that propels change within this set of complex factors is the creative entrepreneur. Our relational concept of innovation concentrates on those features of the *subject* or the *collectivity* that enable innovation. As Woolgar (1998: 442) has emphasized, whether or not "ideas counts as new, necessarily depends on the social networks involved." Subjects of course are embedded within a specific social context that either validates a novel idea as new or resists such a declaration about its own social network. A novel idea is not self-validating but has to be recognized as such by other social actors. As an increasing number of innovation studies have shown,⁷ the *realization* of knowledge, or its translation into technical artifacts, is an extremely complex intellectual and organizational process that relies on sources of knowledge and on "action networks" both "internal" and "external" (for example, on "public science," see Gibbons and Johnston 1974) to firms or organizations.⁸ Thus, innovation is comprised of both a process of displacing concepts or creating novel ideas, to which we now turn, as well as social contexts of reception.

Having commented on the difficulty of defining innovation, we nonetheless offer a broad definition as an orienting tool: conceptual innovation refers to the epistemological realm between a paradigm shift on the one hand, and explaining new experiences and phenomena with pre-existing theories or understandings, on the other. Schön ([1963] 1967) work on conceptual displacement, we suggest, offers a bridge between the novel and the routine by arguing that it is through metaphorical extension, the application of existing metaphors to new conditions and problems, that allow for the birth of innovative ideas.

Building on Schön ([1963] 1967: 53) investigations, conceptual innovations can be described as a process of the *displacement of concepts*, that is, as a "shift of old concepts to new situations," puzzling experiences, or phenomena. The old concept becomes "a symbol or metaphor for the new situation." The new concept then evolves as a result of the work that goes into "the making, elaboration, and correction of the metaphor." The metaphor changes, and the new experience is shaped into something more familiar yet still distinct, while its peculiar characteristics are made intelligible and somehow more mundane. Cognitive displacement refers to the entire working or spelling out process of a new metaphor. As Schön ([1963] 1967: 57) points out, the displacement of concepts always occurs in specific contexts from which, as he put it, the source of energy comes. The displacement of

⁷ For an overview of the results of innovation studies cp. Faulkner 1994: 434–442.

⁸ One of the first empirical studies of the interdependence of technical innovation and organizational processes and development is Burns and Stalker's *The Management of Innovation* (1961). For a recent discussion of the territorially embedded approach to innovation drawing on studies from the fields of economic geography including the "cluster" literature (cf. Asheim et al. 2006) and regional studies, see for example James et al. 2012.

concept may be speculative or playful, for example, “as when a child is amused at the idea of a boiling tea-kettle as a baby crying, or a biologist is intrigued with the notion that heredity is the transmission of coded information.”

2 Innovation and knowledgeability

There are many significant references to knowledge and its production as a foundation stone for innovativeness in discussions about the role of innovation in the modern economy (cf. Beckenbach and Daskalakis 2010). If one defines knowledge as a *capacity of action*, as the ability to set something in motion, then invention and innovation constitute the ability to generate *novel* capacities for action. And if one follows Schön’s concept, then novel capacities for action or knowledge represent noticeable and acknowledged departures through metaphorical extension from habitual and routine responses to the contingencies of social action.

In this sense, therefore, the extraordinary importance of scientific and technical knowledge does not primarily derive from its peculiar cultural image as representing essentially uncontested (or, objective, that is, reality-congruent) knowledge claims. In this context, the tremendous societal importance of scientific and technical knowledge in developed societies is related to one unique attribute of such knowledge,⁹ namely that it represents *incremental* capacities for social and economic action or an *increase* in the ability of “how-to-do-it” that may at times of course be “privately appropriated,” if only temporarily, in as much as the benefits from innovations based on incremental knowledge are stretched out or leak to third parties.¹⁰

It is unlikely that innovation stems from one best way. However the cognitive and social foundations that enhances the capacity to innovate can, as it were, be described. But the puzzle that remains is: what attributes of individuals and groups

⁹ A comparative anthropological analysis of knowledge systems that does not proceed from the assumption of an essentialist hierarchy of knowledge systems with scientific knowledge invariably at the apex of such a stratified figuration, but rather aims to explore both continuities and differences among forms of knowledge, can be found in Watson-Verran and Turnbull (1995).

¹⁰ Consistent with Schumpeter’s core insights, Drucker (1993: 184) observes that initial economic advantages gained by the application of (new) knowledge become *permanent and irreversible*. What this implies, according to Drucker, is that imperfect competition becomes a constitutive element of the economy. It is the case, of course, that the wide dissemination and application of knowledge beyond the boundaries of the organization that initially gained an edge (as the result of being ahead of its competitors) does not literally lose the now more widely “shared” knowledge since this is one of knowledge’s more peculiar properties. Knowledge can be disseminated or sold without leaving the context from which is disseminated or sold. The edge that remains is perhaps best described as an advantage that could be minor but may also be quite significant, based on cumulative learning or the fact that one is able to benefit from the “first-mover-advantage.” All of this does not preclude a strategy among firms that attempts to share the benefits from incremental knowledge and innovations in an attempt to reduce the economic risk of investing into the fabrication of knowledge and in an effort to increase the payoff from innovative products and services. Among other reasons, the difficulties that may be associated with efforts to appropriate benefits from research efforts in private firms is often employed as a standard justification for the public support of science (see Nelson 1959; Rosenberg 1990; Pavitt 1991: 111); or it is argued that the societal returns from basic research efforts are significant and higher than the private returns, justifying public support for such research (Rosenberg 1990: 165).

enhance their ability to offer non-routine responses to situations in which the habitual responses fail to achieve desired outcomes, for example, the desire to enhance the competitiveness of a firm. We would like to offer the idea that it is *knowledgeability* that provides the social and cognitive foundations for the potential of invention and innovation. Our conception of knowledgeability, as should become evident, does not merely constitute one of the basic foundations of innovativeness alone. Knowledgeability represents social and cognitive competencies that generally amount to the ability to master one's life more fully.

The term “knowledgeability” is not a common expression found in social science discourse nor is the concept, as a result, an essentially contested notion (following the usage of this idea as explicated by Gallie 1955, 1956).¹¹ We now introduce knowledgeability to move us further into the realm of the cognitive, and to address the social sites, in which innovative actors must bring to bear their cognitive competencies in order to develop the *capability* to become innovative, actually realize and protect their creations. Put another way, knowledgeability represents mainly the cognitive prerequisite for agency (or capability), or the nexus of cognition and action; we intend for it to constitute the bundle of social and cognitive competencies that actually drive the process of invention.¹² Unpacking the bundle of competencies means to enumerate some of the important specific cognitive and social capacities conferred by knowledgeability, capacities that are mobilized in accordance with the demands of specific contexts. We list below the most important social and cognitive competencies that drive the possibility of inventions and innovation in modern society.

The capacity to exploit discretion: Since the social rules and legal norms and regulations that govern ordinary and extra-ordinary social conduct are never

¹¹ Nonetheless, a few discussions that make reference to knowledgeability may be found in the social science literature. These usages differ from our conception. For example, Giddens (1984: 21–22) refers to the notion of knowledgeability in the context of his structuration theory. Giddens' term knowledgeability refers to *practical knowledge* (practical consciousness), and thus knowledge as a “normal” or everyday point of reference of social action, shared by many although in a tacit sense, or not immediately apparent or accessible (Giddens 1984: xxiii; see also Berger and Luckmann 1966). Knowledge, so defined, is a condition for social action. Using Pierre Bourdieu's terminology, common sense or practical knowledge corresponds almost always to the non-reflexive *sens pratique*. Practical knowledge refers to an immediate competence in making sense of the world. However, it is a competence that is, as it were, oblivious to itself (Bourdieu [1980] 1990:19). It does not contain the knowledge of the practices it generates. The practical mode of relating to the social world is as Bourdieu ([1980] 1990:19) also describes it, a relation of “learned ignorance” (*docta ignorantia*). Dewey ([1916] 2005) offers a similar perspective on common sense knowledge. Giddens usage of the term knowledgeability appeals principally to these universalistic, a-historical attributes of practical knowledge found in all societies at all times, and not to the questions taken up in this paper: what is the role and importance of knowledgeability as a core attribute for the possibility of innovation.

¹² Our definition of *knowledgeability* refers *neither* to what is called common sense, non-reflexive or ordinary knowledge and *nor* do we refer to specialized scientific-technical knowledge. Also, knowledgeability should not be conflated with knowledge, especially not with its frequent proxy in empirical studies, namely years of schooling. Knowledgeability is closer to what is at times defined as reflexive or theoretical knowledge. It is the combination of ability and temperament that enables one to pursue interests and get things done. For example, knowledgeability should be seen as the ability of actors and groups of actors, actors with little formal institutional power, to move items of concern onto a particular agenda, such as bottom-up innovation for example.

constituted and enforced in ways that do not allow for discretionary interpretation and execution, the competence to mobilize discretion refers to the capacity of individuals to gain comparative advantages, for example in such areas as the time set aside for a project. The capacity to exploit discretion is also meant to indicate a kind of interpretive creativity associated with interpreting rules and laws in ways that reveal opportunities or blind spots. Exploiting discretion means that while rules may exist, an actor is able to explore the boundaries of these rules in ways that reveal their ambiguities, grey areas, or potential loopholes, and thus be in position to exploit them if so desired.

The *facility to organize protection*: The capacity to put protective devices and measures in place is a matter of specialized competence that enables actors to mobilize access to differential knowledge in order to ensure, for example, that assets and entitlements are protected against structural or inordinate depreciation. The symbolic or material opportunity costs of the failure to organize protection and diagnose opportunities can be considerable. In many ways the facility to organize protection represents the flipside of exploiting discretion mentioned directly above in that it involves the capacity of ensuring that rules are established and enforced that will in fact protect one's interests.

The *authority to speak* (cf. Bourdieu 1975; Lyotard [1979] 1984) and effectively participate in society extends, for example, to the ability, the self-confidence and self-esteem to introduce items on the political agenda or to challenge the discourse of experts (see Feyerabend 1978: 96–97). One of the conditions for democratic control is the capacity to place items on the program of the day or to empower non-experts to judge expert's points of view. Both abilities are increasingly based on differential knowledge and immediately imply a parallel social division in opposition to those not authorized to speak. The authority to speak in order to dissent applies for instance to many features and situations¹³ in everyday life but also extends to the ability of lay audiences or persons to enter a discursive field or habitat of expertise as “speakers and confront the alleged truth of the discourse that justifies those practices” (Larson 1990: 37). By the same token, the inability to master knowledge is quite independent of the modes of exclusions/inclusions always associated with differential education, increasingly interpreted as a sign of personal failure.

The *faculty to engage (possibly conflicting) multiple viewpoints*. The ability to consider or hear, to tolerate, expand or bring rival points of view through networking closer together, for example, in the field of scientific discourse, engineering, health or collective action but also many other everyday or extraordinary perspectives in mundane life are a distinct cognitive asset in arriving at, in defending one's standpoint, in emancipating oneself from a conventional perspective and in persuading others of the value of a viewpoint or decision. The faculty to engage, articulate and perhaps even integrate multiple viewpoints

¹³ Sprague and Rudd (1988) have examined the nature and the extent of organizational dissent in high-technology industry.

(“integrative complexity” [cf. Tetlock 2002]) extends to the ability to aggregate and collate what amounts to “dispersed knowledge” (Hayek 1945: 519) in society.¹⁴ Last but not least, the capacity to engage multiple viewpoints in an organization extends to the ability to tolerate conflicting ideas or simply display an open mind.¹⁵

The *ability to mobilize defiance* and organize resistance constitutes another crucial component of the stratifying mode of knowledge (cf. Essed 1991). To challenge the practices of experts, the state, or corporations constitutes an important asset of knowledge as a capacity to contribute to struggles against inequality. A case in point would be the development and extension of moral markets (Stehr 2008; Stehr and Adolf 2010), or the activities of social movements targeting corporate, educational, and other institutions (Walker et al. 2008). In the same sense, the ability to evade surveillance by the state or in the marketplace, formulate discourses of resistance, and obtain spaces of self-regulated autonomy acquires considerable significance and is based on the capacity to mobilize tools that typically are seen as instruments exclusively enhancing scrutiny.

The *capacity of avoidance and resilience* is a further stratifying trait that can be enlisted in accordance with different knowledge bases. Such strategies ensure that some of the risks of modern society are distributed differentially, for example in the areas of safety concerns, exposure to conflict or violence, health risks or environmental degradation. Foresight, or the capacity to anticipate that certain conditions may pose or precipitate risks, enables actors to incorporate measures of preparedness and to protect against potentially devastating challenges or losses. The capacity of avoidance extends to the ability to build up resilience and tolerate failure; it extends to the cultivation wherewithal, or a reservoir of resources that will allow one to recuperate and recover when circumstances turn disadvantageous.

The *ability to generate new and persuasive ideas* or opinions that may find its place on the basis of unforced persuasion, for example, onto a research agenda of the day.¹⁶ Since neither knowledge, as capacity to act nor information describing features of a person or a thing contain specific references about what to do and even less on under what circumstances and commitments it might be possible to set it in motion, ideas have the unique ability to recommend and mobilize action by virtue of

¹⁴ Hayek (1945: 519) classic formulation of dispersed knowledge refers to the discrete knowledge distributed among economic actors in the marketplace only: “The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge, which all the separate individuals possess.”

¹⁵ The ability to tolerate conflicting points of view has considerable affinity to Rawls’ (1997: 766) notion of public reason: In a democratic society, “citizens realize that they cannot reach agreement or even approach mutual understanding on the basis of their irreconcilable comprehensive doctrines. In view of this, they need to consider what kinds of reasons they may reasonably give to one another when fundamental political questions are at stake.”

¹⁶ The ability to generate new and persuasive ideas as one of the competences that make for knowledgeability has a “soft” affinity to cognitive characteristics of the economic function of the “creative class” as described by Florida in *The Rise of the Creative Class* (2002). Aside from the “super-creative core” of the creative class made up of occupations such as scientists, university professors, poets and architects, there is a diverse group of professionals who “engage in creative problem-solving, drawing on complex bodies of knowledge to solve specific problems”; what the group of professionals “are required to do regularly is think on their own” (Florida 2002: 69).

the diagnosis of a state of affairs contained in the statement of ideas. Ideas (e.g., “The basis of social inequality is unjust”) contain kernels of a call for action. As is the case for all of the parts of the bundle of competencies we have enumerated, the benefits for the individual or a collectivity that come with opinions and ideas for example can of course have their direct or indirect downside and not only confer status, satisfaction and bring about social and cognitive change.¹⁷

The range of social and cognitive competencies we have enumerated generally amount to stratified capacities not only for *mastering one’s personal and professional life* but for *the formation of social milieus* that foster innovative activities; that is, the general capability to take initiative and responsibility, for example, for one’s health (life expectancy), financial well being, personal life, aspirations, career or long-term security, one’s community, to keep multiple viewpoints and trade-offs in mind simultaneously, to tolerate failures, the ability to detect “loopholes” or the facility to locate and gain assistance toward mastering these tasks and, finally, make a difference in what is collectively considered in need of repair/change. They represent the generalized effects of a differential access to and reflexive awareness of relevant knowledge bases.¹⁸ The ability to decide, mobilize defiance, gain and exploit discretion, develop ways of coping, organize protection, develop new ideas are a significant part of such strategies, and therefore of the conviction (*internal efficacy*) that one is in charge, and not merely the victim of fortuitous circumstances or subject to the constraints others impose.

3 Conclusion

It is the growing knowledgeability of actors in modern societies, or the enhanced bundle of competencies that represents the foundation of the ability for the *self-organization* and *creative cultures* of small groups of actor in different social roles, for instance, as employees but also as consumers, tourists, workers, students or politically active citizens and the linkages that emerge among these roles for the benefit of each role. The capabilities we have specified sound like a toolkit for accounting for the uneven distribution of innovativeness. However, innovation

¹⁷ In the context of discussing ways of measuring the quality of life that transcends the conventional economic indicator of the GNP, Hirschman (1989) asks whether “having an opinion” is a good that should be incorporated into a measure of the quality of life of a country. Hirschman (1989: 77) offers the following assessment employing the language of economics: “the forming and acquiring of opinions yields considerable utility to the individual. At the same time, if carried beyond some point, the process has dangerous side effects—it is hazardous for the functioning and stability of the democratic order. Under present cultural values these side effects do not enter the individual calculus—they are like external diseconomies.”

¹⁸ In the United States, the social location of many of these activities can be found in what Drucker (1989: 187) calls the “third” sector of non-profit, non-governmental, “human change” institutions [or, the “civil society sector” as Salamon and Anheier (1997) have called it]. The third sector is actually the “country’s largest employer, though neither its workforce nor the output it produces show up in the statistics. One out of every two adult Americans—a total of 90 million people—are estimated to work as volunteers in the third sector” (Drucker 1989: 197).

remains a *wicked problem* (Rittel and Webber 1973) for which it is most difficult if not impossible to rely on a clear map or develop an explicit plan to build and enhance a culture of creativity.

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