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No. 9/2010

**Why Innovation Theories
Make no Sense**

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Abstract. In this paper I argue that it makes no sense to have “innovation theories”, or the use of the concept in describing the potential of social and economic theories to explain the phenomenon of non-equilibrium. If we wish to explain dynamic, change, evolution, revolution, etc. in socio-economic systems, then theories that are genuinely capable of doing so are indispensable. We don’t need static theories of society, economy, organization, the firm, etc. which need an “additional” theory of incongruence and dynamics as an exception. In this context, the recent boom of literature on “social innovation” seems to be particularly questionable. It presents itself with the attitude of opening, broadening, or intellectually “freeing” the discourse of innovation from its technological insularity. That might be interpreted as opportunism since the idea of “innovation” generates an abundance of attention and approval so that any matter of concern can be legitimated and ennobled by the simple use of the word. Therefore, my paper begins with a short history of the category which has never been restricted to techno semantics.

1 A Short History of Innovation

History can be portrayed in one of two ways; either the observer describes what he *sees*, or the observer describes *what he* sees. The first is based upon observations, usually written by novelists and scientists, with the latter preferably following a style that tries to conceal the subject of the description (“it must be seen”, “it has to be concluded”, “this only allows” and more of that bad TINA-taste)¹. The second way of depicting history is by focusing on the act of observation itself and the tools of observation - to which the terms belong. No matter if called constructivist, deconstructionist, discourse-analytical or double-hermeneutical, it’s epistemically critical and typically used by philosophers of science or heretics of “normal science”. That’s the perspective I adopt here with respect to the category of *innovation*. The majority of those who refer to this category do not think about its history, but rather if so, they usually allow the history to start with Joseph Schumpeter, which is not the worst idea as the ideals of this old-school national economist (a socio-economic school, with Max Weber as one of its followers) went far beyond that which is understood to be innovation as discussed in everyday conversation and German ministries. This understanding, which did not speak at all of “innovation” but rather “new combinations”, comprised of, as a reminder, the

“Production of a new... product or a new quality of a product,
Introduction of a new ... production method ...,
Opening of a new sales market...,
Conquest of a new supplier of raw materials or semi-finished products ...,
Completion of reorganization...” (Schumpeter 1912/1987, p. 100f.).

As he first explicitly used the concept of innovation in his more recent theory of economic cycles (first published in 1939 in the USA, and later in 1961 through a German translation), a definition of the term *invention* is already evident in his theory of economic development, and thus also the limitation of the concept of innovation to a novelty, which is only to be

¹ There Is No Alternative, falsely ascribed to a lady with a handbag who was only a good representative for this predominant type of governmental communication

considered only as such if it is commercially implemented on the market (Schumpeter 1912/1987: 128f.). In his mind, therefore, *innovation* pertains (only) to a *commercially exploitable novelty*. As a rule, he considers inventors and entrepreneurs to be different groups of persons and subjectivities. Those who refer to Schumpeter and the term he characterizes as being innovation are already familiar with this.

Undoubtedly this is not the only term available to novelties in industry and society. There are also terms such as: *change, development* and/or *evolution, mutation, creation, growth* (as a mode of development), *modernization, reform, revolution, progress, discovery, imitation* and *invention* as foreign terms for the aforementioned concept and others (i.e. mental phenomena such as insight, cognition, idea or imagination). Some of them imply a higher degree to the semantics of *existing for the first time* than in Schumpeter's category. What this means for the present fashion of extending the innovation category to every form of manifestation and how that differs from something anterior is the subject of the next section.

First let's go back and revisit the roots of the concept: which history of the meanings prior to Schumpeter can be reconstructed? The modern and conceptually designated history of *economic* understanding does indeed begin with Schumpeter. Let's go back a bit further, keeping him as a reference point. Prior to Schumpeter, Gabriel Tarde (1890/1897) presented a sociological/socio-psychological theory of change which Schumpeter furthered in many respects, particularly with regard to its evolutionary perspective.² He did not illuminate the innovation concept, but rather, to some extent, its two neighbors. He made a distinction between *Invention* and *Imitation* and assigned the *latter* a central significance in socialization. Inventions are unique, generally unplanned events³, but they themselves are "built upon elements of earlier imitation (...), and comprised of these compositions which in turn are imitated and become new elements of more complex structures" (Tarde 1890/2003: 69); i.e. new combinations in Schumpeter's sense. While they are indeed decisive starting points for social change, they only arise through imitation. He called this *lois de l'imitation*, the laws of imitation, and traced them throughout the social institutions: upbringing, education, science, and so on. Logically, Everett Rogers (1962/1995) cited him as an important source in his book *Diffusion of Innovations*, in which he, before others, introduced this fourth central concept into the research on innovation.⁴

Tarde's approach could counterbalance the present exorbitant overestimation of innovation and the widespread irreverence for imitation (similar to heroic history, the historical narrative of the "great men") in two respects. Firstly, he accentuates the non-teleological characteristics of change and lends social meaning to imitations. And secondly, with respect

² See, in continuation of this paper, Moldaschl 2010 (for the moment only in German).

³ He defines "invention" as "any desired innovation or improvement in any kind of social phenomenon such as language, religion, politics, law, industry or art" (Tarde 1897/2003: 26). Evolutionary approaches in economics can easily relate; one might also find similar thoughts in Jean Piaget's "genetic epistemology" (which should better be called *evolutionary* epistemology in order to avoid biologist connotations).

⁴ Introduced in the sense of categorical use; he was not the sole user and also not the first one. See also for example Graham (1956); Lionberger (1960); Hodgen (1952) spoke of "distributions of technological innovations".

to the above-mentioned iterations, it can be appreciated as *a source of variation* since an imitation can never be a perfect copy of its model.⁵ We can also call this “learning” and therein also capture the non-cognitive dimension. Every cultural exchanges proceeds in this way, and that is also how evolutionary theories are understood in socio-economic change.

We should also remember Adam Smith (1776/1997) and his comments about the connection between the division of labor (i.e. specialization) and mechanization in the manufactures of his time.⁶ Though in his third book, (pp. 311-344) he solely dealt with the development of society (prosperity) and not innovations. The topic was given a central significance by Karl Marx whose entire work emerged under the influence of industrialization; the dynamics of which had been unknown up to that point. Many of his studies on the phases and forms of “Produktivkraftentwicklung” (*development of the productive forces*) have been collected and published as “technological/historical excerpts” (Marx 1851/1981), a treasure trove of the “innovation research” established until that time.

Formerly, towards the end of the middle Ages and the Renaissance, there were indeed some isolated studies on technological knowledge and its development (e.g. those of the Renaissance scholar Georgius Agricola, or Georg Bauer, whose book on the technology and development of mining and metallurgy was a point of reference for more than 200 years). To my knowledge however, there exists no literature that systematically explores the production of innovations, including those of an intellectual type. The lesser, pre-capitalist dynamics of society were also reflected in a lesser appreciation of the new and the divergence from traditions. The corresponding word for innovation/novelty “in fact, as with imitation and invention, ... was pejorative for a while. Until the eighteenth century, a “novator” was still a suspicious person, one to be mistrusted” (Godin 2008a: 22).⁷ In Roman culture, starting with the root word novus (new, and novitas, novelty), there was also the verb innovare (to renew, but also: to devote oneself to a thing anew) isolated in use by educated persons.⁸ But even in the classic texts, there was no (or I have at least not found any) systematic preoccupation with innovations and their effects.

⁵ That imitation paradoxically created a difference here and also led to the rediscovery of Tarde in post-modern difference philosophy (see also Deleuze 1968/1992); and Tarde’s interest in which has had its repercussions in the Actor-Network-Theory (e.g. Latour 2010). For what appears to be a newly beginning debate on Tarde, see also the volume published by Candea (2010).

⁶ Such as in the famous example of needle manufacturing (ibid.: 10); but there is not a single systematic explanation, not even a sub-section on this, in the more than 800-page book; only scattered references to “technical improvements” or “new and different machinery” are to be found (e.g. 236f, 331f, 573).

⁷ In the last years, Benoit Godin from the Institut national de la recherche scientifique, Quebec/CA, has become probably the most active and visible ‘archaeologist’ of innovation as a concept and discourse; applying a critical perspective in the above mentioned sense, see <http://www.csiic.ca/>

⁸ As in Caesar’s *De Bello Gallico*, or several times in Cicero, e.g. in *De Inventione* (approx. 80 BC, on creative rhetoric), or in Justinian’s *Digestae*, a somewhat scientific-sociological argument as in the following quotation, often falsely attributed to Cicero: “Ateius Capito in his, quae ei tradita fuerant, perseverabat; Labeo ingenii qualitate et fiducia doctrinae, qui et ceteris operis sapientiae operam dederat, plurima innovare instituit” (Justinian 533, Dig. 1.2.2, §47) <http://www.thelatinlibrary.com/justinian/digest1.shtml> (“Ateius Capito held fast to that which he had learned; the more intelligent Labeo, on the other hand, who had also dabbled in other fields of knowledge, dared to introduce a number of innovations based on his scientific training.” [personal translation])

Coming back to the present, until the 1970s the conceptuality and innovative focus of Schumpeter, together with regard for his work, had largely disappeared for a number of decades, at least from the view of the economic sciences.⁹ A glance at the handbooks of that time bears witness to this fact, such as the ten-volume concise dictionary of economics which was very widespread at that time in German-speaking areas (HDWW 1988). The term “innovation” does not even appear here, and only marginally does so in some of the others. Following this, several waves of discourse appeared which to some extent established an obsession for topics on innovation, primarily in connection with high-tech semantics. This was also propelled along in politics through its installation of a systematic survey of innovation indicators in the mode of an international benchmarking competition (see also Godin 2008b). Thus, if representatives of the social sciences claim to “free” the innovation discourse from techno-semantics, this seems to be quite a short-sighted perspective, and a semantically narrow one. The social sciences comprise an institution by which societies have been approaching the subject of transformation; at least they have been over the past centuries. Why the social sciences wish to adopt the innovation concept to this end today is in need of clarification.

The (fragile) Arrangement of Concepts

Before touching on innovation theories, we must arrange the inventory of innovation-related concepts that have been compiled so far. The most important ones can be put in order according to an idealized sequence, the conventional phase model (e.g. Brozen 1951 on the first three phases):

Invention – Innovation – Imitation – Diffusion

Making distinctions among them however, is not so easy. If differentiations between *Invention and Innovation* are to be made, saying that the first occurrence of doing something must apply to inventions, what in the world do “new combinations” signify according to Schumpeter’s notion? It is easier to make distinctions using practical examples than ones based on general principle. Sony’s Walkman, for example, did not really contain anything new: a magnetic tape recorder, miniaturized electronics, nicely packaged in a shiny case: a typical “innovation” in Schumpeter’s view. But secret services had had this type of device for some time before its introduction. So we have to be more specific: consumer innovation. What about modern cell phones? Data transmission via satellite had already existed, but the telephone was stationary. As far as possibilities for social communication are concerned, it surely has been a far-reaching innovation, and it would be easier for us to call the entire system an Invention; it’s very easy to designate the integration of a lens together with camera electronics as an innovation, likewise that of storage applications or Internet connectivity. Is

⁹ Apart from a few exceptions, as in the USA Karl Deutsch (1949) or Chris Argyris in “Organization and Innovation” (1965), in Great Britain Burns and Stalker with their formative “The Management of Innovations” (1961), or in Germany Mellerowicz (1957), who established it in this discipline with his “Research and Development Activity as a Business Problem”, Machlup (1961) or Kieser’s postdoctoral “Corporate Growth and Product Innovation” (1970).

laser cutting or the first laser cutting machine an invention or only an innovation? High-energy lasers have been around for a while and the same for processing machines. On the other hand, a machine that can cut metal without contact had not yet existed. We need not make a decision about this, but do need to keep the relativity of something occurring for the first time in the back of our minds; a concept to which Tarde had already made reference.

What about *Imitation and Diffusion*? They are not two sequential phases, but rather only two words for the same process in relation to production and consumption. If we think about physical products or goods, Imitation designates that which other manufacturers do and Diffusion that which is achieved, i.e. distribution of these products among potential buyers. How their “adoption behavior” and how it affects the manufacturer was investigated by Ev Rogers (1962/1995). If we look at behavioral styles, there are no significant differences: style is not manufactured anywhere. It diffuses from the place where it originated, only through adoption. Of course this too, is uniquely idealized as market societies e.g. media companies (or intermediaries, like Apple) commercially produce styles, trends and models. Diffusion is therefore identical to Imitation as a process category.¹⁰ Only when used as a word for result, does it designate something else: the number of people who already imitate, related to the number of those who are qualified to do so; a relation based on assumptions regarding the second variable (e.g. that women 75 years and older are – personally – no longer or – culturally – not yet considered potential buyers of skateboards).¹¹

This in turn causes our distinction between *Innovation and Imitation* to alter. Where an Innovation is only an innovation if it is distributed on markets and thus becomes (economically) relevant, then there is basically only a single special case of true Innovation: a case where a producer has a product that is so genuine, so *unique*, that only this specific product is distributed on the markets. The next difficult question is *how long* an innovation continues to be one. Surely the tube radio was an innovation in its time, today it’s an antiquity. At what degree of distribution, which market saturation, does it stop being a novelty? Upon invention, market launch or later stages of diffusion? Would it still be an object of innovation research to study the introduction of laser metal cutters in niches of the industry, almost four decades after the market launch with considerable market penetration, the maximum of which (saturation) can never be precisely determined?

This points to a problem with the concept of innovation itself. It emerges when the category appears with a universal claim of validity and breaks away when innovation is defined as *situated* and *relational*. By *situated*, I mean that the concept reflects the perspective and interests of the respective practice, and by *relational*, that the relationship between the

¹⁰ As already stated by Levitt (1966: 63). Karl W. Deutsch (1985) also presents such an argument, however not referring to a market, but instead to a public that is not any more clearly defined. Only when something is widespread and repeated (he does not address the paradox) can we speak of innovation. “To constitute an innovation, [behavioral changes] must occur on a relatively large scale. Innovation is action and the results of action lead to repeated and widespread action. Innovation must be widespread, it must be repeated (ibid.: 20).

¹¹ Market saturation cannot ever be determined absolutely, when referring to an assumed basic population (e.g. all Germans, all Opel drivers over 40). But the assumption of a potential market can only be roughly estimated by means of customer surveys.

previous and current practice of the respective field of practice becomes a subject of discussion. Let us take the concept of teamwork as an example of “social innovation” (see also Section 2) . It has been propagated by the social sciences as an organizational option over the past 60 years. What could have passed as innovation in *scientific* practice 40 years ago, has meanwhile long left this status behind; it is a component of an “old” pool of organizational options. On the other hand, for a company which to date has been operating on Taylorism, the introduction of a different logic of organizing continues to be an innovation. In this local *operational* practice, we are dealing with something for the first time, combined with all of the associated uncertainties and risks.¹² This less-than-absolute definition points to the groups of players which are to “implement” an innovation. Their readiness and capability depends on and is embedded in social, political and cultural contexts. Technology transfer and development aid policy had to learn this lesson even earlier.¹³ Therefore, we could also speak of *objective* and *subjective novelty*, as did Hübner (2002).

Let us discuss a further distinction that handles uniquely with the concept of innovation and distinguishes *radical* from *incremental* Innovation. Beginning with our students, who commence their study of innovation with an aversion for improving existing products that seems to be learned from the cradle, to politicians and their research policy talk and over to the ranks of product developers themselves: only “radical” innovations are considered to be “good” innovations. Good in this notion means initial expectations for extra profits, the assurance of long-term above-average returns, building up one’s reputation and endowing social recognition, proving intellectual and creative superiority over the ‘copiers’ and so forth. This stands in strong contrast to reality, which is at least 99% characterized by convention, conformity, imitation and gradual improvements. That in itself is not especially noteworthy, since ideals are always those for which people strive. However there is no scientific evidence that radical innovations have always, on average or in the last instance been better, more profitable, more recognized, etc. (there are only a few business findings on this topic, such as by Grant 2005: 340ff). However, the era of enlightenment as an epistemic context of economic thought, with its emphasis on breaking traditions and the heroic creation of novelty, has clouded our vision to such an extent that we can easily dismiss this discrepancy. It is a signature of modernity which points to our own forms of intellectual imitation and limitation.

A Different Arrangement of Concepts

In continuing reference, two more phases in the conventional phase model tend to disappear, and one that has not thus far been mentioned can be added. Invention and Innovation can be viewed as *aspects* of modifying things in use (see e.g. von Hippel 1988) and redesign.

¹² The definition by Soskice (1997, S. 324) can be interpreted as follows: “An innovation is radical for a company if it must hire employees with new capabilities, new know-how, etc. in order to bring forth an innovation”, but remains limited to the perspective of the individual company.

¹³ By this I do not wish to imply that learning will always and immediately lead to changes in practice. The transitions from knowledge to action and from knowledge to skill are among the greatest and most persistent problems with which psychology and sociology grapple. For this reason as well, development policy is not really a gratifying example, but still a good one.

Invention and Innovation can be regarded today as a cycle that is becoming closer interwoven at an accelerating interval, somewhat like an engine as it increases in RPM; and Invention will be taken from its place as being unique and brand new when Innovation is then regarded as the creation of new combinations and applications (like Tarde). Imitation also no longer appears as a phase if we now see it as the mutational force and variant-generating process of diffusion. And so I now have three phases: a *generative*, a *distributive* (diffusion) and an *inhibitive* phase. The latter is barely regarded in non-political and market-idealized discussions: *control*.

Invention – Diffusion – Control

Tarde in his time (1897) had already undertaken a phase breakdown, which appears similar to this one: Invention – Opposition – Imitation, but by this, he implied something different; first of all, the contrast between old and new, otherwise the relationship; secondly, that which the entire tangled mass of literature on “innovation barriers” gives priority to: “psychological” barriers, e.g. “a fear of the new” or the resentment of envious or competitors (which ceases when the initial opposition is overcome).¹⁴ A third class of inhibitors is addressed by economists who focus on path-dependency (e.g. David 1985; Liebowitz, Margolis 1995). The latter ones connect us to the realm of economic strategies, which is for me the very aspect with which the phase of control correlates (some of which is addressed in industrial economics, e.g. Bain 1968; Caves, Porter 1977, and the latter Strategic Management discourse). Market-controlling variables, oligopolies or even monopolies, which are closely tied to the political powers, on most markets generally form during the course of “maturation” in which rivalry, cooperation and/or coalition complement each other. We have examples of these structured markets, which are called “mature”, in the defense and aerospace industries („military-industrial complex“), the oil industry and other parts of the chemical industry, the automotive industry¹⁵, the chip and computer industry, entertainment electronics and energy production.

The phenomenon of *path dependence* is especially strong in these markets; channeling of economic alternatives for action originating from previous investments, not only by the producers, and strengthened by control strategies of the producers themselves. “*Market launch barriers*” are emerging effects, but also the result of corresponding strategies (pricing, power, alliance, trademark rights strategies, etc.), which can also be called strategies of *innovation control* (or combat or hindrance). Some examples in particular from the recent past in the automotive industry come to mind: electric powertrains, catalytic converters and diesel particulate filters. Of course, we may also understand path dependence in a culturist way (as in parts of the literature on National Innovation Systems), not only in the former rationalist

¹⁴ Of course there have been reports on strategies by competitors on how to suppress rivals in any field, not just product improvements, since the beginning of the Industrial Revolution (the famous cases, perhaps, of Horace Day vs. Charles Goodyear or George Westinghouse vs. Thomas Edison. Typical management literature recommends these as “killer strategies” with respect to competitors (e.g. Stalk, Lachanauer 2004).

¹⁵ Former German Chancellor Schröder did not have any problem in being called the “automobile chancellor”, for example, postponing the End of Life Vehicle Redemption Directive for a few years at the request of the lobby. And the connection of the Bush family and its wirepullers to the oil industry was referred to as “the firm” during the Bush Jr. administration.

and structuralist way. Thus, innovation research needs to be supplemented with *innovation prevention research*, which systematically compiles, structures and incorporates the abundantly available knowledge into the teachings regarding the strategies, practices, players and alliances.¹⁶ It could be also called *inhibition science*. It should under no circumstances begin with the implicit assumption that all ideas and activities of control and inhibition should be removed by enlightenment, or at least be condemned.

2 No Innovation Theories

Innovation science has already been established and institutionalized at universities and national research agencies, but do serious innovation theories really exist? My assumption is that at least general innovation theory – whether singular or plural – is just as meaningful as a *theory of everything*,¹⁷ at least not if the subject of change that is to be clarified is not in itself homogeneous. Would it then make sense to set up a “theory of the process” without designating a specific class of processes (e.g. biological) relating to the item? The ‘process as such’ is an empty abstraction, just the same as ‘the innovation’ in and of itself. The “need” of a general theory of innovation had not even presented itself until a few decades ago, but it was fairly clear in an everyday understanding of business, politics and the media that innovation had something to do with new, usually technical products or perhaps even with new procedures, but in any case with technology within the scope of business.

What about the possibility of specific innovation theories? If e.g. the mentioned research on National Innovation Systems (NIS, e.g. Freeman 1987; Pavitt 1999; critically e.g. Miettinen 2002) can be subsumed under one approach, is that a type of specific “innovation theory”? It could thus be stated, adding that this theory is about fostering and hindering effects of societal institutions and their configuration. But we could also say it is a body of theoretical assumptions and empirical results concerning economic growth in a national perspective, thus a national-economic theory of a non-equilibrium type. I would definitely prefer the latter. But, of course, to see it that way also increases the demands the approach has to meet.

During the last two decades however, the semantics of innovation has quasi overflowed, lost any limits and thus inevitably become *more meaningless*. Talk is gradually turning into *social innovations*¹⁸, policy innovations, innovations in art and fashion and/or cultural innovation, medial, mental, linguistic innovation and so on. Therein lies not only a zeitgeist

¹⁶ Until now, the discussion of this topic has been limited to certain parts of industrial economics (e.g. Mathieu 2004) and to the formation of the patent law (e.g. Stephan et. al. 2007) or the “incidental consequences” of microeconomic patenting for economic development as a whole (see also Schaeffle 1867, a national economist from Tuebingen, Germany, on whose authority the copyright debate is largely based upon today).

¹⁷ Even where this term is not used or not only used satirically, the fact about the impossibility of such a thing is very clear. The term is used in physics to describe the longing for “unification” of relativistic cosmology and quantum theory. Nevertheless, every physicist knows (or should know) that he will not be able to explain platonic love, or predict the course that adolescents take in achieving their identity.

¹⁸ Currently a number of books have been published on this – with the claim of “overcoming” the narrow-mindedness of previous innovation research and declaring something new.

overestimation of the significance of innovation in economic and social everyday life (that would be the subject of another article), but also a *degradation* of all types of social, cultural and political transition towards innovation – a concept that in the last six decades has been reserved for economically *exploitable* novelties.

Of course, there has always been discourse on other *types of novelty*; I have already mentioned *social change*, with which people have been dealing with for at least two millennia, and *political revolutions* have been a topic for centuries now. Those in scientific thought (“*paradigm change*”, see also 3.1) became a weighty topic half a century ago, and *organizational change* even somewhat longer ago. No matter what vocabulary we use, the discourse on novelties of various kinds in all segments of societal life belongs to the modern era in the least. But when does an observer or a theory originator ascribe innovative value to change? If we factor out relapses: are crises perhaps innovations, provided they do not repeat in exactly the same way (where can this be found at all)? When should the circumstances to which they lead be described as new and/or simply “different”? Depending on how these questions are answered, do crisis theories (e.g. economic, organizational, and disciplinary) also need to be included? Well, then we could say for instance, Keynes primarily offers an economic theory of crisis (or of dealing with it), and Kuhn a theory of scientific crisis. In both cases, the significance of doing so is obvious.

If we further observe this social change horizon together with the social constitution of technical innovations: isn't everything ultimately *social innovation*? Has a generic term otherwise been found?¹⁹ I doubt it. A specification cannot be more general than that which is specified. In this respect, the daily use of language is one step further when it comes to the adjectives listed (technical, political, cultural, etc.)²⁰, at least naming the different items under observation, to the extent that they are all still subsumed in the semantics of innovation today. If, however, the innovation category appears to be so universally important and opportune, it can be accepted as a possible solution to the dissolution of boundaries with respect to subject matter.

“When ‘the new’ has taken virtually all positive attributes upon itself and newness is seen as a quality in and of itself, there are hardly other options available than to feign newness, even when true innovations can barely be perceived. The new – and not just when it comes to fashion – is all too often just the old in a new wrapper” (Liessmann 2000: 11)

Another question that arises is how we *assess* it all *normatively*. As outlined above, the category of innovation has been defined in social sciences and economics over decades by the fact that it describes the economic *exploitation* of a new idea – not the new idea itself. An invention or discovery, or an unconventional creative idea thus only becomes an innovation (and thereby valuable) if money is made with it on the market. Persons who prefer to apply

¹⁹ Otto Neuloh (1977) was one of the first to use this term, and defines social innovation as “Introduction of new ... ideas and institutions” as well as “improvements”, i.e. anything that is new, and anything else that may be meant by “introduction”.

²⁰ If need be, it would seem to me semantically acceptable to designate all non-technical innovations as social innovation and not use the adjective together with cultural, political, etc. The fact would however need to be accepted that not only the radical changes, but also the incremental ones (the „improvements“) be permitted in whole to claim being “social innovations”; such as longer business hours of a governmental authority.

the category to anything new might not necessarily explicitly agree with this definition, but they should bear in mind its younger history and explicit definition.²¹

If every innovation is ultimately stressed as being “social”, then would we not be forced to designate every innovation as a mental construct? Alongside Homer Barnett (1953), he states every innovation is first and foremost an idea.

“Strictly speaking, every innovation is an idea, or a constellation of ideas; but some innovations by their nature must remain mental organizations only, whereas others may be given overt and tangible expression. “Innovation” is therefore a comprehensive term covering all kinds of mental constructs, whether they can be given sensible representation or not” (ibid.: 7).

That would not only make a problem out of each of the above distinctions, but also level them out: invention and diffusion would then become dispensable as well. If we consider how thinking is defined within problem-solving research, namely as *combining*, then Sherlock Holmes would not be the only daily innovator, but so would everyone else *who thinks*. Without delving further into the subject, there are enough open questions on the subject, such as those already presented above: why is innovation, or better yet, how did innovation become so attractive as a concept, buzzword or “talk” (in the sense of Brunsson) to the point that everyone wants to ennoble their product with it? And do there not exist sufficient similarities between technical, social and cultural innovations, or at least innovative processes, which demand an innovation theory that goes beyond subject matter and discipline? Or demands several?

Two arguments may well suffice to answer the first question: *economization* and *legitimation*. Innovation has undoubtedly become more important in the business world; the continuing economization of society further supports this – a positive feedback (at least in the logical sense). An artist would certainly protest if his creation, his personal style, was degraded to the point of exploitable innovation (or even to a “unique selling profile”). For most of the others implied, it is more appealing to give that which they do or want a silver lining of innovation. It is a self-reinforcing trend, *recursive opportunism*, even and especially in the sciences. Perhaps it makes research funds somewhat easier to come by if the Middle High German sound shift is investigated as a phonetic innovation, or if a twenty-year long change research project without any changes is continued under the label of social innovation.

I have already formulated my answer to the second question above. Everyone would immediately suspect a ‘theory of illness’ to be nonsensical or esoteric.²² Except for the fact that the organism is not healthy, there are at best only partial similarities regarding the

²¹ In teaching innovation research and management, we nevertheless use a broad innovation concept for didactic reasons. The *everyday understanding* of technical innovation, which most of the students regard, is shockingly *a-social*. It scarcely includes a single idea of the social constitution of technology, of alternative development paths and the interests that intertwine with technological options, or of the struggles for their implementation; nor of well-founded objections and opposition to technical innovations beyond the irrational (which as a result, one would not be able to “clarify” with discipline promoters or simply wipe out with power promoters). Notions of the natural legality of technical change and the ideological neutrality of technology are seated so deep that test results often confine the optimism of universal enlightenment.

²² I know economics = economic theory = mainstream economics, and is also accused of being esoteric.

individual illnesses of humans, not to mention animal or plant species; the heading of this section does not denote innovation theory either. The next section explains more specifically of what it actually comprises: about innovation *in* socio-economic theories. The latter is a delimitation, which intends to keep the scope of the article within limits and is based upon our theory preference. The investigation as to how innovation is treated in select socio-economic theories should thus provide a few answers to the second question: the observations guided by the theory have some similarities, which they (however) ascribe to their respective subject matter.

3 Innovation in Socio-Economic Theories

The assertion that there are no serious innovation theories could be proven – provided it is understood as an empirical question That would then entail such unproductive discussions as to whether and why we could ascribe theory status to the much-coddled concept of Open Innovation, as described by Chesborough, and what claims, in turn, we have on the concept of theory. But it is not a question that can be answered empirically, but rather paradigmatically. No theory of society, science or technology gets by without some assumptions that deal with changes to the subject matter, because obviously almost everything changes, either continuously or erratically. The entire history of life is a history of change, and relevant parts of this are explained in Darwin’s evolution theory (or should we rename it ‘environmental theory of genetic innovation’?).²³ Change must therefore be “endogenously” explicable. On the other hand, it is also true that only static explanation models require “completion” by means of concrete theories of innovation.²⁴

Among the more or less static theories in the social science field, which are primarily concerned with mechanisms of maintaining the system, are the structuralist, functionalist and some institutionalist types; the most widespread of the rationalistic types are economic theories of equilibrium. For example, Neo-classical economics could never explain technical change “endogenously”. It had to be brought in “from the outside” as an external variable or simply assumed as a constant (e.g. as yearly average productivity growth). As Joan Robinson (1953) expressed it, it was simply taken as falling “like manna from heaven”.²⁵ Although

²³ In fact, some authors who attribute themselves to „evolutionary economics“ use Darwin’s concept of mutation non-metaphorically as a synonym for innovation in socioeconomic contexts, not having any problems with biologism, and not respecting Darwin in his reserves regarding the matter.

²⁴ This holds equally true for the natural sciences. The static physics of the 19th century was dynamized with a great deal of commotion via paradigms, such as through the theory of relativity (space and time were now suddenly relative, but Einstein’s cosmology was still static) and through the Big Bang theory, after Hubble had measured the red shift. ‘Equally’ is presumably the wrong adjective. Static theories have long since ceased to be an option in the natural sciences.

²⁵ This is above all a double anecdote on attribution processes, especially since this debate pertains to a problem of measurability, and secondly its caustic quote is currently most often ascribed to the one against whom it was aimed: Robert Solow. Another example of positing a constant instead of an explanation of change is Parsons’ “evolutionary universals” (1970), the development model of the functional differentiation in certain western societies, which Parsons considered to be universal, and therefore globally valid and invariant – i.e. legitimate.

often quoted, it is still too mildly expressed. What good is a theory of equilibrium if equilibrium is only hypothetical, an ideal type or at best a short-term observable special case? It is comparable to a broken clock that only shows the correct time twice a day. What helps such a theory when the reigning principle of the living world is the production of imbalance, the reduction of entropy, from the self-organization of a molecule to the growth of companies all the way to the modernization of societies?

Those educated in the social sciences will presumably compare my innovation theory anti-thesis with *theories of social change* they needed to adopt during their studies. The existence of social innovation theories therefore seems to be academically verified. Surely there are some anthologies on theories of social change (of course, far fewer in number than on almost any other topic of social-theory), but realistically there is only one thing to be found in them: *that which social theories have to say about social change*.²⁶ Obviously the anthologies are only slightly less careful than my section-title, or perhaps their authors simply more courageous. There is a work by Kurt Aregger on “Innovation in Social Systems” (1976), the first volume of which exercises caution and effectively represents the preliminary work for the second on curricular innovations.²⁷ He goes beyond the scope of current readers on the topic of social innovation (e.g. Martens, Keul 2005; Maccallum et al. 2009; Goldsmith et al. 2010; Howaldt, Jacobsen 2010)²⁸ to the extent that he attempts, with a clear focus on the organizational level, to systematize existing knowledge on the conditions, methods and barriers of organizational change processes. The focus on the *specific* object, in this case the school system, remains an effective and explicit guiding principle in structuring. To me, this seems to be a reasonable reflexive position vis-à-vis the ever-present temptations of overgeneralization found in social sciences.

Did Schumpeter have an “innovation theory”? No, even though it is often inferred that he had one with a dissolute notion of theory. Furthermore, did he not lay claim to a “theory of the entrepreneur”. What he did offer and explain accordingly was his *Theory of Economic Development*, in which the entrepreneur – as a more or less creative subject engaged with “new combinations” – was the most important endogenous driver.²⁹ For Marx’ theory, such a

²⁶ As previously cited in Ogburn (1950), or in the volume by Zapf (1969). One of the few later books on this by Wieland Jäger and Ulrike Weinzierl (2007) is wonderfully precise on this point (as was the previous work by Jäger and Meyer 2003).

²⁷ But even less so in the subheading of the first volume, “Introduction to the Theory of Innovation of the Organization”. This title does not fit either, because the author does not present any consistent theory, but only types, characteristics and barriers to innovation in organizations, and it is compiled in part from various organizational theory approaches and in part without any reference to theory at all.

²⁸ Some of them and many others centered on the issue of whether the capitalist can also be good, i.e. social (as described by Ellis 2010), and to what extent CSR can be a social innovation, or at least elicits such (e.g. BMU 2009; Louche 2010).

²⁹ He strayed so far from Walras’ thoughts on equilibrium that his entire aversion was directed against the “static hosts”. He felt that entrepreneurs on the other hand, were “not boring equilibrium people”. Even his definition of this ferment remained tied to such a dynamic: one could “basically only [be] an entrepreneur if one followed through with ‘new combinations’ - which is why he loses character if he continues to operate the created enterprise in a cyclical manner” (Schumpeter 1912/1987: 116), thus becoming a mere manager.

theory (without the elitist element of a manufacturer's son) was again only a component of a general theory of societal upheavals in relation to economy and society.

Raymond Boudon (1983) presented a similar thesis to mine in a more offensive manner, in a text featuring the programmatic title "Individual action and social change: a no-theory of social change". His rationale is based on the "classic" notion of theory; according to which theories are empirically examined using prognoses derived from them, but a deduction of verifiable causative statements was not possible from the perspective of a *non-deterministic* sociology. I however do not share this pre-constructionist scientific understanding which is typical for methodological individualism (the view from which Boudon argues). I would like to adhere to the centuries-old idea, which is by and large constitutive for science, that theories *should* be empirically examined. However willingly, the question as to how complexity and social-constructionist theories *can be* examined will be the subject of another article.

If someone thus wishes to explain *social innovation*, then according to my thesis presented above, a theory of social innovation is not necessary, but rather a social theory which does not assume that state of equilibrium as the norm is needed as a starting point or even a goal: Marx, Weber, Schumpeter, Mead, Schütz, Coleman, Habermas, Giddens or the more recent Luhmann, for example. Social theories can surely be distinguished their by *how strongly* their creators were interested in explaining the stability or change in society and wherein they saw the essence and driving force of this change. If it would be permitted to shorten each of the latter to a single dependent clause for the purpose hereof, then for Marx this would be the moving contradiction of productive forces and power relations, Schumpeter the ferment of the creative entrepreneur, for Weber the implementation of rationality in institutional forms, Coleman the emergence of individual, rational decisions and for Giddens the related potential of structure in the opportunity to modify them in their usage (dialectic of facilitation and limitation). If we criticize Parsons today, for example, because for him the stability of complex societies was above all a marvel in need of explanation, then others will perhaps ask us later why we felt (or some of us felt) that only their change was in need of explanation. They will then have to decide which of it was "Zeitgeist" and/or to what extent this zeitgeist itself promoted the creation of those social conditions and the consequence of which it is.

If someone wishes to explain *technical innovation*, a theory of technology is on the contrary not necessary because unlike society, technology does not produce itself. What is needed instead, is a socio-economic theory which provides a model of the synergies of the creativity of action, the economic incentives and the other institutional contextual conditions of producing technical artifacts (including the historical inventory of technical procedures). Such can be found, for example in the area of research into the origins of technology, which today can also be considered part of the research on socio-economic path dependence (e.g. David 1985; Liebowitz, Margolis 1995), and the closely associated research on National or Regional Innovation Systems (see above); I shall come back to this. Schumpeter's theory of the entrepreneur (1912/1987) was a precursor and prototype of such socio-technical theories. The stimulus for change is the creative entrepreneur, which is why Schumpeter also saw the reason for the approaching downfall of capitalism in the entrepreneur's displacement by

managers (for Weber a part of progress; see also Schumpeter 1942/1980: 213ff.; part of that analysis of side effects is hinted at in the initial citation).

It is something else again when one wishes to deal with, classify, criticize or postulate theories of *innovative capability* which is the central theme of our innovation research (e.g. Moldaschl 2006; Moldaschl, Manger 2010). The primary objective here is not to explain the drivers and logic of innovation (if such do exist), or to predict the course of technical, social and socio-technical change, but rather to grasp and explain the relative capability and achievement of social entities (organizations, regions, countries, persons) when dealing with drivers of change. That is not only “much less”, but also something entirely different. Many pursue this only from the perspective of a theory of competitiveness where the specification of competition remains mostly unexpressed (and often not deliberated) under the conditions of capitalism. On the other hand, the regional and historic constitutions of the respective politico-economic systems are an explicit subject in the already-mentioned NIS/RIS research and the research on the varieties of capitalism (e.g. Hall, Soskice 2001).³⁰

We can certainly learn more about generalizations of change and barriers from research of this kind, similar to how a great deal about the workings of everyday, successful routine actions can be learned from error research (i.e. practically the opposite). How individual or collective players of a company handle challenges and opportunities is of course part of the constitution and reproduction of the next context up to the overall system (or structuration in Giddens terminology). If a large portion of the companies within a country relies on isomorphism in competition and not on uniqueness, this will have systemic affects on all other companies of the country; the dominance of isomorphism, the adaptation to the behavior of others, can be explained for its part with reference to the above context (e.g. national culture, political system). Countries where the companies act in a more “isomorphic” manner than those of others will encounter problems if further innovation takes place within a supranational context. But they do in turn, recursively and on their part (depending on their economic significance), reduce the innovation pressure on others.

The question as to what makes *countries, organizations or persons* more capable of change, more adaptive, more creative or more innovative than others is easier to answer than the question regarding explanations of change “per se”. This does not mean that it is possible to do without a corporate theory. For example, if differences among companies are desired to be explained, here too, the basis of the explanation must be a level-specific theory of the subject, i.e. a *theory of the firm* as it is called, especially in business administration. It must first of all be “dynamic” in itself, or – to be semantically correct – explain the issue of dynamics (why do companies grow or go under?). It must also be able to determine its connection to the next higher level, in this case to theories or rather a theory of competition, or more generally a theory of the political economy. The capability of a company to change can therefore *not* be derived from the models of the above context as long as there is no determination relationship. “Derivation” is impossible as long as organizations (such as companies) have

³⁰ To give another example from scientific theory: Popper, in his “Logic of Research” (1935/1989) presented a type of technology of the progress of knowledge, more or less an instruction, as to how innovative capability is to be established in research (as a strong critic of this, see Feyerabend 1975, Albert 1982).

their own laws that distinguish them from those of society and from individual actions. The best thing that social theories and theories of political economy can accomplish is to design micro-macro models; models that allow for the positioning of level- and subject-specific theories – to the extent that they are not provided simultaneously.

I would like to close with a disquietingly soothing refrain from Bert Brecht and his Song of the Moldau written during his emigration. It summarizes the entire argument presented above, and at the same time I'm sure, our only certainty beyond our own end:

“The biggest don't stay big, the smallest don't stay small”

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