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## **A CULTURE-BASED VIEW ON INNOVATION COMMUNITIES WITH SOME MARGINAL NOTES ON THE POSSIBLE FUTURE OF OPEN INNOVATION**

During the last years changes in innovation styles have occurred. The most recent development was the advent of a concept labeled as ‘open innovation’. The meaning of open innovation ranges from the opening of the involved actors’ basis, e.g. by including suppliers and customers to opening the understanding of innovation, e.g. by opening to new themes. The paper outlines an approach into *innovation competence*, which is a synthesis of knowledge, experience, skills and intuition. The synthesis or fusion is embedded into an *innovation discourse* among the relevant innovation actors. Innovation competence in its perfected form goes beyond carrying out high-level innovations, but rather can be understood as the involved actors’ ability to transcend the boundaries of innovation, its premises, and the given goals. Thus innovation competence can be seen as contributing to an enhanced understanding of open innovation. Innovation communities are suggested as the preferred form to develop a high level of innovation competence.

### **1. INTRODUCTION**

The last decades are characterized by considerable changes in the social organization of innovation. While the former simplistic view on innovation as a process of applying knowledge and transforming it into new, or improved products or services and thus commercializing knowledge, was challenged by new approaches that open up the perspective by not narrowly focusing on knowledge in the sense of codified or articulated knowledge. In addition, a simple linear process from pure knowledge into applied knowledge and eventually into innovative products or services was contested. In an actor perspective the easily identifiable individual innovation heroes vanished and – due to a change in the overall processes of innovation – (bi-lateral) actor collaborations and networks appeared as the new key structure of innovation. Recently, all these developments have been complemented by a concept of *open innovation*. This colourful concept brought forward, among others, by Chesborough [1], has a broad range of meanings, starting from a simple opening of the involved actors’ basis by the inclusion of suppliers and customers into companies’ innovation processes and ending up with “crowdsourcing”, a type of cooperation with a huge or undetermined number of potential innovation actors. This

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understanding of open innovation obviously focuses on the enlargement of the number of actors involved in innovation processes. Evidently, this can be perceived as contributing to a new innovation quality, but is it sufficient in terms of sustainability and aren't new social goals of innovation on the agenda in the future?

With these questions in mind an enhancement of the open innovation concept is proposed that builds upon the idea of innovation communities as an advanced type of cooperative innovation and which not only re-defines the modes of collaboration but also challenges the conventional or mainstream understanding of the essence of innovation. Thus the re-formulated question reads: What is innovation good for and how can wishful developments be stimulated?

## 2. HOW INNOVATION CHANGED ITS FORM

For decades the mainstream of innovation research identified innovation with technical innovation. In this restricted perspective engineers were the natural innovation actors. But over time, innovation has developed from a process that originally took place within the boundaries of a company into a dispersed process that occurs in various places or which has a single but virtual space. This development equates with opening up the innovation actors' circle and implies the inclusion of additional actors into the innovation processes. In the beginning widening the actor basis included spheres outside the field of engineering design, but nonetheless they belonged to the overall sequence of innovation process steps from planning and design to marketing and sales. Boundary crossing of innovation alliances, either bi-lateral or networked, changed the innovation processes, e.g. by emphasising the necessity to secure communication among the actors, which was mainly a problem of crossing the cultural borders between different disciplines, or domains. With the advent of community types of innovation new forms of collaboration emerged that were typically evolving in the open source software development [2],[3]. While in innovation networks the included actors are participating because of their functions, positions or expertise, in innovation communities anybody can become an innovator. Innovation networks usually include expertise, or functions that fits into the portfolio or that is required for certain purposes. Even stronger is this strategy in the case of bi-lateral innovation partnerships, e.g. between companies and universities, or research institutes. On the side of the company is a clearly defined need for expertise which is assumed to be held by the partner and which shall be transferred. On the other hand, the involvement of actors in innovation communities are open, unplanned and not deliberately selective. Innovation communities typically implement an innovative process that is opposing to some core elements of traditional innovation concepts such as the idea that innovating companies or organizations need to develop major innovative knowledge in-house. An innovative community does not care where the knowledge or expertise is located, the crucial point is that it is available and can be used for innovation. Furthermore, innovation communities' mechanisms of incentives and gratifications differ from those of innovation partnerships and company-based processes. Accordingly the innovation

communities' goals linked with innovations are in general more socially-oriented rather than aligned to the commercialising interests of traditional innovation.

A case that is often presented as a paradigmatic example of open innovation is the company *InnoCentive*. *InnoCentive* claims to be the place "where the world innovates" [4]. This company stands for a special strategy of innovation management: The company sources for solutions to innovation problems, preferably technical problems defined by other companies of the bio-chemical sector. Basically, *InnoCentive* is a marketplace where a network of anonymous innovation actors is working on defined problems. The potential problem solvers' expertise is no object, it is the individual problem solver's own motivation to deal with problem solving. The advantage of *InnoCentive*'s openness to basically anybody is the foundation of its advantage above other forms of innovation cooperations: The problem solver's domain of expertise is often outside of the domain of problem definition. The outsiders' approaches can thus be assumed to be the key to the successful solution of technical problems.

*InnoCentive* also only adheres to contract research using the resources of the 21<sup>st</sup> century: It is an asymmetrical design that is similar to many large companies' concepts to initiate an innovation competition between departments (or sites) within the company. But *InnoCentive* acts anonymously in the "global market", instead of doing business within corporate limits. The question, however, is whether this is in fact an 'open innovation'? A great part of the 'open innovation' community thinks it is. Hence, the overriding question of whether this response shows a limited and superficial understanding of the definition of innovation is raised. Shouldn't 'open innovation' be defined in a much broader sense? If open innovation is to be a pioneering approach to research and practice of innovation, it must go beyond the integration of customers and suppliers in innovation processes as well as beyond a globalized ideas /inventor competition. 'Open innovation' would have to reposition itself with its basic assumptions about innovation. For example, the basic understanding of innovation, their operating principles and reward mechanisms should be redefined and a clarification of the term 'openness' should be done. Especially the term 'openness' can then show if it means the opening of innovation involvement through integration of customers and suppliers, or whether wider dimensions of the innovation activity will be integrated into the concept.

This is exactly what such innovation approaches which aim at integrating customers [5] or are based on network cooperation [6], do not do. The mentioned *InnoCentive* approach offers no advanced understanding of openness either. Rather, the three approaches have in common that they still remain within the limits of the 'Schumpeterian paradigm' whereby innovations are characterized by the fact that they are merely the establishment of a new production function. Thus, the companies' perspective is established as a benchmark for innovation and so the pursued innovative purposes are attributed to individual companies. This also applies to networks in which individual companies transform their new production functions.

This, however, is not the case with globalized 'inventor markets' (*InnoCentive*) as well as with the so-called contract research. Both can of course be understood as forms of 'open innovation', since organizational boundaries are being opened for the purpose of innovation. They differ only from the above-mentioned type in that they are hierarchical and

asymmetrically influenced. Also, the latter two types focus on knowledge transfer. This is based on a 'knowledge gap' or a knowledge deficit on the part of the company, which, in order to be compensated for, either deliberately asks for expertise or aimlessly places an anonymous request for expertise on the global market. Under the given or agreed framework and rules (concerning intellectual property rights, and gratification) innovators, external to the enterprise, develop knowledge and expertise and make this available to the innovative firm, which then 'sets up new production function'. The imbalance of this relationship is shown in the circumstance that the innovation takes place within the company, whereas the external suppliers of knowledge and expertise are not involved in the open innovation process after having delivered.

The implications of these types of innovation will be discussed in the subsequent chapters in order to ensure a broader understanding of open innovation.

### 3. CREATING INNOVATION COMPETENCE IN DIFFERENT INNOVATION MODES

Different forms of innovation deploy different modes of competence generation and handling. Traditional innovation types focus on collecting innovation knowledge that is mostly of technological nature. Once applied in the innovation process it may become incorporated in products. In these types of innovation knowledge is treated as a commodity. It is either available as a resource within the company or it is subject of cooperation in bilateral and networked relationships. While knowledge can be bought or be obtained via sourcing this is not so easy with other components of *innovation competence* to which experience, skills and intuition are counted.

In short, innovation competence in its perfected form goes beyond carrying out high-level innovations, but rather can be understood as the involved actors' ability to transcend the boundaries of innovation, its premises, and the given goals. Thus innovation competence can be seen as contributing to an enhanced understanding of open innovation.

Probably the most important issue in the creation of a high-level innovation competence is the integration of its various components or inputs. The major challenge in this regard is the successful 'fusion' of different inputs from various actors of the innovation arena. The difference between a sometimes very additive integration and an organic fusion is precisely the success factor, which makes the crucial difference between a high and a low level of innovativeness. Fusion shall mean more than a combination of different inputs, "it invokes an arithmetic in which one plus one makes three" [7]. In other words, something new emerges. And fusion furthermore is highly dependent on co-operation among various actors without being led by a 'heroic innovation champion'. This is why many examples show that a high level of social skills ensures the successful fusion.

The idea underlying this paper is that these fusions shall be embedded into *an innovation discourse* among the relevant innovation actors. The general assumptions of this concept are the ideas that (1) innovation processes are interactive processes among a (varying) number of different actors; (2) the contents (or subjects) of these discourses do not follow exclusively purposive rationality; and (3) communication is the basis of interaction. Innovation discourses are special cases of communicative action brought

forward by Habermas [8]. They incorporate technical artefacts into the interaction, they incorporate power imbalances, but nevertheless they allow the development of trust relationships during the discourses and thus they allow the creation of a mutual understanding – leaving it open whether this understanding is an inter-subjective phenomenon or a mutual self-deception of observing observers. Innovation discourses thus are socially, institutionally and culturally – and accordingly in my terminology industrial culturally – situated. Therefore we can expect differences in the formation of design discourses according to the underlying industrial cultural setting. Before the argument is developed further some short remarks on concept of *industrial culture* shall be made. For the purpose of international comparisons industrial culture is understood as a dynamic object which is taking shape on various interdependent levels: the macro or national level, the meso or regional, institutional or organisational level, and last but not least the micro or individual level. A set of dimensions has been developed and proved to be significant constituents of industrial cultures: social institutions, covering common cultural values and attitudes as well as industrial relations, technical styles and role models etc., industrial organization the structure and organisation of industry or industrial sectors, general and vocational education and training, industrial policy, and last but not least psychology. Summing up, industrial culture is devised as a multi-layered actor-oriented approach, which means that (i) the relevant dimensions and their operationalised variables are located at various societal levels and (ii) that industrial culture is the coherent and dynamic system of mutually stabilizing dimensions which serves as an action orienting frame for individuals, groups, organizations, networks or for whole nations [9], [10].

When re-considering the above outlined remarks on the commodification of knowledge the question how to utilize experience, skills and intuition for the generation of innovation competence occurs. The answer must be differentiated depending on the innovation type. The traditional company-based type has all the ‘ingredients’ in-house therefore all components – knowledge, experience, skills and intuition – are available and can be utilized – theoretically. In practice often organizational constraints are detrimental to a successful configuration of innovation competence.

For bi-lateral cooperations the generation of innovation competence is a difficult task that in most cases is not achieved. The reason is that the bi-lateral relationships are often safeguarded by contracts which impacts the relationship between the partners, defines their roles and often prevents an overriding of their pre-determined roles towards competence building.

Networks of innovation can show a wide range of competence building. The less they are strategically oriented the more they correspond to the bi-lateral cooperation type. The more strategically they operate the more they can create innovation competences by developing innovation discourses, which go beyond knowledge accumulation. Evidently the degree of building innovation competence is depending on the establishment of trust relationships within the network as well as on the communication style and the nature of collaboration.

Innovation communities are gathering people around a mission or a shared idea of what innovation should focus on (not necessarily do they end up with a product). Since the collaboration generally is long-termed there are opportunities to bring into the

innovation arena all ingredients needed for generating innovation competence. Usually there is a high level of commitment among the members of innovation communities, the involved actors want to achieve a common goal and therefore are willing to play a substantive part in the community by contributing more than the usual amount of their available resources. Under these circumstances a common self-understanding of the community's activities and goals is developing, and trust emerges and grows. Sharing of knowledge and experiences as well as the informal exchange about skills and tacit knowledge is more likely to take place under the condition of mutual trust within innovation communities.

If we quickly throw an industrial cultural view on the innovation competence creation in different modes of innovation, we learn about the importance of the key factor 'trust' which is, among others, influenced by communication, the willingness to share knowledge, experiences and skills, the tie strength between partners and genuinely cultural values and attitudes. Given these dimensions as crucial for generating innovation competence, it is obvious that innovation communities have the best chance to achieve a high level of innovation competence.

The final section will pay particular attention to an enhanced understanding of open innovation and the possible role of innovation communities' in this new innovation arena.

#### 4. A POSSIBLE FUTURE OF INNOVATION

Nelson and Winter's remark that ". a theory of innovation must incorporate explicitly the stochastic evolutionary nature of innovation,..." [11] can be seen as the starting point for a stand-alone research strand that focused on the stochastic quality and the 'uncertainty factors' undermining innovation processes. Meanwhile, plenty of practical concepts of innovation management have been developed to combat against the 'uncertainty'. Beyond the widely accepted uncertainty factors like incomplete information on new products, new processes and new markets which strongly impair the rationalist conception of economic action, also the process of generating and applying innovation competencies: knowledge, experience, skills and intuition, is discovered as a source of uncertainty in innovation. This refers to the difficulties of generating a new quality of innovation by involving different actors into the innovation processes. If finding the right people to become involved might be difficult, involving people is even more difficult, but no guarantee at all to achieve successful innovation. The arguments outlined above suggest, that the traditional forms of cooperation are not supportive for new or open innovation processes. Evidently, crossing the organisational borders was one important step that allowed to open up the innovation arena for innovation actors hitherto not engaged. But as long as these processes of pulling down the borders, and selecting and incorporating innovative actors is managed and steered by a 'visible hand', i.e. a principal innovating person or organisation, the composition of the cooperating actors or networks is pre-determined and thus the success depends on the wisdom of the principal innovation actor.

Joining an innovation community is completely different. This takes place by self-assignment of actors to existing communities. Through this approach a usually bigger variety of actors, interests, domains and disciplines emerges in the community. Because

of the uncertainties of the innovation processes this does not determine success. But through the variety of perspectives impinging on each other there is a good chance to develop new approaches, re-define innovation goals or find unexpected solutions. Of course, doubts can be raised in how far communities are emergent entities or in how far they are self-organising and self-steering. At any rate it can be stated that they are on a way towards these (ideal) ends. Their clear advantage against Schumpeterian innovation types denote those forms of innovation that go back to the definitions of Schumpeter, which means that these forms of innovation are company-based, have a clear emphasis on commercialisation and are measured in economic terms. Probably is their potential to put new themes on the innovation agenda and thus contribute to open innovation. Evidently, open innovation in its enhanced meaning will comprise a re-alignment of innovation goals from an economic to a social frame of reference. This goes hand in hand with a re-alignment of the utility and the valuation of innovation towards social criteria. Similarly, the rewarding mechanisms for innovation will be transformed from market to society.

Through their huge internal variety of actors and perspectives innovation communities can be expected to contribute to the mentioned re-orientations and transformations of innovation towards a real open or holistic innovation [12].

## 5. CONCLUDING OUTLOOK

The recent changes in the modes of innovation towards “open” or ‘holistic’ concepts offer opportunities for remodelling the actors’ relationships towards community types of collaboration. The expectations meeting with these reorganizations circle around generally developing new innovation approaches and re-defining the innovation goals. Besides, a fundamentally new approach into innovation will throw a fresh view on the innovation process itself. Re-defining the general innovation approaches and the innovation goals contributes to opening up innovation to new themes, which are beyond the realms of economy and technology. But in addition to extending the contentual scope this will affect the innovation processes. They will be more open-ended, uncertainty will be on the increase. But it is even more than ‘incorporating the stochastic nature of innovation’. Actually this means to accept the non-deterministic quality of innovation processes. Thus the myth of planning innovation processes must decline – at least this is true for those innovations that are more radical and not of incremental nature. It can be expected that the role of innovation management will be reduced to clearing up of obstacles. Innovation by ‘recipe book’, which relates the ‘ingredients’ and defined process steps with an expectable outcome is not feasible – especially if socially responsible and sustainable innovation is pursued. Instead of a ‘deterministic mode’ of innovation with a hierarchical control the truly open innovation will be of an *emergent and autopoietic type* in which the system components, i.e. the innovation actors create a system, i.e. innovation community of which a qualitatively new level of innovation competence evolves.

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