CREATIVITY AND INNOVATION IN THE KNOWLEDGE-BASED SOCIETY

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Abstract: In an economic context, creativity has been defined in several ways and the creative products are as diversified as the concept of creativity. Consumption and demand for creative products are characterised by profound uncertainty. Beyond the tight perspective on creativity and the creative products, creative management represents the study and practice of management that focuses on the creative processes theories and their application at individual, group, organisational and cultural levels. Another important aspect to be considered in understanding the knowledge-based economy and implicitly of the creative economy is interdisciplinary and multidisciplinary cooperation within the innovation process. It comprises the formal or informal framework bringing together organisations in different activity sectors and technological institutions around common purposes and objectives. This framework facilitates the mix of competences and knowledge and abilities integration which are necessary for creating complex technologies and products on the market.

In an economic context, creativity has been conceived in numerous ways. It can be deemed as:

e) the personality traits of the individual that facilitate the development of new ideas;
f) the process of generating new ideas;
g) the results of the creative processes;
h) the favourable environments for new ideas and behaviours.

These various perspectives have led to the existence of different definitions for creativity. According to Hargadon (2003) and Im (1999), innovation is seen as the recombination of already existing ideas. Some authors consider that it is just the capacity to generate new and valuable ideas to create and improve products, services, processes and procedures. Sternberg considers that creativity signifies that specific capacity of working in an original and adequate way, while for Amabile creativity is a set of qualities or certain retorts perceived as creative by proper observers. It has been concluded that this concept is a complex and vague one, very difficult to define unanimously.

Creative products can take different shapes, ranging from new theories, hypotheses, formulae and techniques to machines, designs, materials etc. They all have to be original, to satisfy specific wants, to be adaptable to the reality, to be useful and relevant for the level of knowledge reached in the field. On the other hand, the creative process is seen as integral part of the innovation process. The latter is defined as the advent of a relationally original product, developed on the one hand due to the individual's uniqueness and on the other hand due to materials, events, people and circumstances.

For this type of products – creative products, Faulkner and Andersen consider that consumer demand represents a significantly random component, making it almost impossible to estimate and control. The uniqueness of the creative industries stands in this very impossibility to anticipate their demand because the participants to these industries and its observers coincide (*Nobody knows* – the property over creative goods, according to Caves and De Vany).

Consumption and demand for creative products are characterised by profound uncertainty. It is worth mentioning that some authors state that there are more types of uncertainty, which have different effects on strategies. Miller and Shamsie (1999) distinguish between the following types of uncertainty: *industry specific uncertainty (environmental/state)*, *organisational level uncertainty (effect)* and *individual level uncertainty (decision response)*. By contrast, Faulkner and Andersen (1987) identify the uncertainty generated by the combination of financial talent with artistic talent, the unequal nature of investment flows and the stochastic nature of demand on the market. Lampel, Lant and Shamsie (2000) talk about certain polarities and tensions within the creative industries sphere.

There have been attempts to act under conditions of uncertainty in various ways, such as resorting to project-based organisation and social informal networks. The development of project-based organisation ways has been interpreted as a reaction to the technological and market environments, which are changing very fast, thus imposing an equally fast reconfiguration of resources and people. This new reconfiguration largely depends on their capacity to develop new abilities or to use previously acquired abilities in entirely new ways. It has been concluded that those companies working in such a manner are innovative, create on a continuous basis and reconfigures those teams whose members possess very well developed skills for multi-task purposes and for using their knowledge in new situations where new technologies are rapidly assimilated and developed. These persons implied in projects belong to some technical communities within which knowledge is created, stored and used.

It has been proved that the development and usage of creative capacities depend on three main factors: *the creative entrepreneur*, who plays the role of an architect and developer of creative capacities; *the creative process*, which includes routines and collaboration processes seen as part of an organisation's creative capacity; *contextual inputs and market assets*.

The study carried by Napier and Nilssen looks at the entrepreneur's role in different creative industries, such as sports (football), theatre and software industry. In the approach of the football team, the coach is actively involved in building resources through planning and executing the development process. He sets parameters such as the degree of flexibility needed to foster creativity. Later on, these resources will be used for the creative moments during the match. Another approach is the one of the theatre, where the stage director plans and develops the concept and structure of the play, which is played after rehearsals in the context of technical décor. The creative aspects, which may sometimes arise during rehearsals, typically refer to elements prior to production. In this case, the stage director's ability consists in his capacity to gather a valuable network of contacts, as well as its reputation. On the other hand, software companies base themselves on recruiting persons and establishing work groups for projects, where complementary abilities, knowledge, as well as a practical sense combine. The ability of management to select such open and valuable persons comes from notoriety, material and other incentives.

Small and medium enterprises have fewer technical resources, do fewer market researches, implement fewer incentives and reward schemes; they usually are not on easily accessible markets and have less known brands. Although both large companies and small and medium enterprises generate innovations, a certain challenge has been noticed. The latter face it especially due to scarce capital and human resources, firm culture and non-professional and less experienced management. Also, they develop less formal processes, they are more flexible, collectively motivated, generate less bureaucracy and are a lot different from an administrative perspective. What distinguishes and offers them flexibility are speed and the creation of a culture of speed, clear-cut objectives within the time horizon, as well as rewards for speed. Small and medium enterprises have a very clear view of the product concept because they cannot afford the costs incurred by a product redefinition.

The creative economy does not represent the sum of the creative industries alone. Its meaning is far larger and can be understood only in the context of the relation between information, knowledge and creativity – this context was also evoked within the Lisbon Agenda. Knowledge and creativity play an essential role in the economy; the former – knowledge – is much wider, though, and seizes a paradigm change within which the critical mass of the economic activity is placed in the category of knowledge production as firms develop new techniques and technologies to meet the changes in the demand structure. After all, business success is ensured by the capacity to respond rapidly.

Among the structural changes from an industrial economy to a knowledge-based economy, several elements could be mentioned:

- the development of *knowledge-intensive* and *design-intensive* sectors (especially those based on information and communication technologies);
- investment in intangibles (R&D, information and communication technologies, organisational restructuring and organisational systems, design, brand, human capital); investment in intangibles strengthens the firms' capacity to create, manage and exploit knowledge;
- *upskilling*;
- the increase in exports of highly-technological products.

Moreover, the concepts of *knowledge push* (the increase in education and scientific research outputs coming from public and private investments; the ways in which ICT speed up the production, collection and dissemination of the research results) and *market pull* (globalisation, competition, consumer demand diversification, increase in the intangible assets role) refer to the entire economy, not only to highly technological or elitist sectors.

For the organisations of this knowledge age, two elements become opportunities: knowledge as resource and factor generating welfare and the Internet, which transforms business into business. Knowledge can take the shape of goods or services based on knowledge, while the Internet represents an effective tool for marketing and knowledge distribution. There is also a *knowledge marketplace*, where the knowledge assets are distributed and traded. On this market, there are buyers, sellers, brokers, prices and exchange mechanisms.

The authors of the article *Inter-organisational Knowledge Sharing and Trading* – Mentzas, Apostolou and Kafentzis – outline the knowledge market typology by the function of the nature of the community and by the nature of the business as follows:

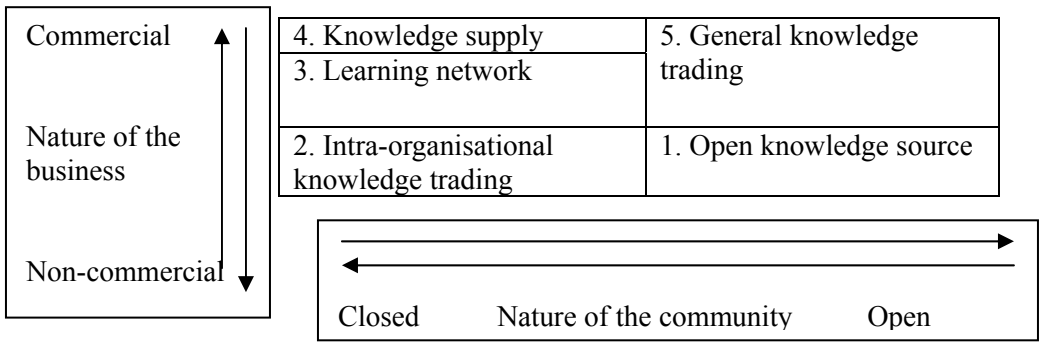

Fig. 1: Knowledge market typology

Source: Mentzas, Gregoris, Apostolou, Dimistris, Kafentzis, Kostas, Inter-organisational Knowledge Sharing and Trading, 2003, http://citeseer.ist.psu.edu/

Briefly, the first type refers to the nature that made it possible to access contents at no cost, as well as to the reunion of communities and networks having the same fields of interest. The second type suggests that the knowledge track in organisations is lead by market forces similar to those acting on traditional markets of tangible goods. The third type refers to the interaction among various organisations that have similar needs, to interorganisational networks formally founded to enhance the participants' knowledge and innovative capacities. The fourth type of knowledge market offers expertise in professional services. The last type of knowledge market refers to open, commercial markets. In its turn, knowledge may be scientific, technological or entrepreneurial.

Innovation plays a central role in describing and presenting the knowledge-based economy. Innovation – an idea, method, and invention used to improve the current activity or the introduction of a new idea or method is a concept close to the concept of creativity. If most of the times creativity is identified with idea generation, innovation implies the transformation of ideas into new products and services, implementing creativity results. Innovation is associated with purposeful change, an attitude of reflecting the capacity to imagine what it does not exist or a process which starts from idea and ends with the implementation. Actually, the two concepts are overlapping. Innovation has become more important to corporations during the past decade given the changes in business, such as: the increase in the technological capacities and their diffusion speed, hyper competition, connectivity etc.

While many companies consider that they *innovate,* most of the *innovative* elements are based on old or existing ideas, principles and processes. At its best, innovation refers to incremental improvements brought to products or services. At the opposite side one can talk about *leap innovations*.

In the literature, there is a distinction between innovation lead by fantasy, brainstorming and free interaction and the innovation derived from knowledge-based technologies and the implementation of new organisation types.

The general innovation process can be described by the following three phases:

4) *fuzzy front end*;
5) *new product development*;
6) *commercialisation*.

The first step often comprises chaotic, unstructured and unpredictable activities

that come before the process of structured development. At this stage, it is ideal to maximise output, which is the number of ideas, mostly because this stage is not that costly as the subsequent development step is. The best ideas will then be selected according to various criteria and implemented.

According to the 19th century sociologist, Gabriel Tarde, within the innovation process the great *constant* forces are directed by *small, new, accidental, forces*. In their book *The 7 Laws of Innovation – The Human Side of Innovation in Organizations* Hoving and Plantinga, consider the human innovation model as intuitive, driven by values, plausible, visionary and empathic.

Creative management, on the other hand, represents the study and practice of management based on the theories of creative processes and their application at individual, group, organisation and cultural level. It is considered that in its fifth phase, following after Ford Revolution, Quality Movement, Humanistic Developments and Organisational Experiments at the end of the 20th century, it will be based on the following three principles:

4) *universality principle* – creativity represents an inherent potential to all human beings. The principle refers to industries far larger than the arts, sciences and business. Also, in education, this principle is broadly acknowledged, as it is considered that intelligence is universal;

5) *development principle* – potential creativity will become real creativity under the proper development conditions;

6) *environment principle* – environment conditions influence the development and manifestation of creativity.

There are more types of innovation, among the following could be mentioned: business models innovation, marketing innovation, organisational innovation, process innovation, product innovation, services innovation, supply chain innovation, substantial innovation, financial innovation, incremental innovation, disruptive or radical innovation, systemic innovation (new technological systems), social innovation.

NESTA (National Endowment for Science, Technology and the Arts) suggested the term *hidden innovation*, which comprises innovative activities that are not counted in by traditional indicators, such as investment in formal R&D or registered patents. This type of innovation cannot be measured but it represents a crucial type of innovation for the practice and performances of the industry concerned. The NESTA study, which was aimed at identifying the types of hidden innovation, was carried on six British industries. Allegedly, figures indicate a low innovation level within these sectors: oil production, retail banking, constructions, judicial counselling services, education and criminals' rehabilitation. The conclusion of the NESTA study was that this type of innovation implies idea absorption rather than the creation of new ideas, outlining at least four types of hidden innovation:

- type 1 – identical or similar innovation to the one of activities measured by traditional indicators, but excluded from measurements (for instance the development of new technologies of oil exploitation);
- type 2 – innovation that does not benefit from a significant scientific or technological basis (for instance innovation in organisation types or business models, such as the development of new contractual relations between suppliers and clients within construction projects);
- type 3 – innovation generated by the entirely new combination of existing technologies and processes (for instance the way banks have integrated various back-

office IT systems in order to offer innovative services to clients such as internet banking);

- type 4 – small-size innovation, locally developed especially by people working in the same field (for instance innovation in teaching or in building multidisciplinary teams).

Studies on innovation have taken over Schumpeter's idea according to which the original combination of certain elements leads to the creation of radical innovation sources. More recently, studies have shown that networks interaction could create such combinations. The development of open-source software is studied as an example of distributed creation or innovation, such as the network organisation.

Regarding the innovative companies in Romania, the National Institute for Statistics, in the Romanian Statistical Yearbook 2006, reveals that, over the period 2002-2004, 80.1% of the Romanian companies were not innovative.

The figure below presents the way the Romanian companies were classified according to the innovation type.

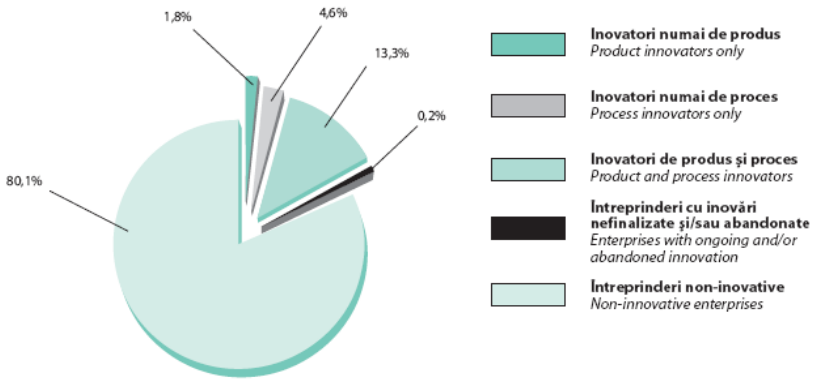

Fig. 2: The weight of innovative and non-innovative companies out of total companies over the period 2002-2004 in Romania

Source: Research-development and innovation, Chapter 13, Romanian Statistical Yearbook, 2006, pp. 9, 40, http://www.insse.ro/cms/files/pdf/ro/cap13.pdf

Two thirds of the innovative companies mentioned above are in industry and one third is in services. By the size of the companies, approximately 55% are large companies, 30% are medium enterprises and 15% are small enterprises.

In the extant literature, six internal factors of influence on companies' competitiveness through creativity, innovation, new product development have been identified:

- organisational strategy and resources availability;
- new technologies;
- the intensity of R&D activities;
- organisational culture and communication;
- organisational structure;
- employees' motivation and the degree of their implication.

An equally important issue to consider is interdisciplinary and multidisciplinary cooperation within the innovation process. It comprises the formal or informal

framework that brings together organisations in various activity sectors and technological institutions around common purposes and objectives. This framework facilitates the combination of competences and the integration of certain knowledge and skills that are absolutely necessary in creating complex technologies and products on the market. The main desired characteristics of this type of cooperation are:

- actors and competences diversity;
- coherence – the integration of complementary activities;
- interactivity expressed by tight cooperation relations.

Besides this type of interdisciplinary cooperation among various sectors or institutions, some authors welcome the establishment of heterogeneous teams from the interdisciplinary perspective.

This diversity refers to the education level of the team members. Thus, studies show it that there is a positive relation between the level of educational heterogeneity and the innovation degree of products; between the level of educational heterogeneity, the degree of identification of opportunities offered by the environment and the innovation degree of products; and between the level of educational heterogeneity, the openness of strategic planning of the entrepreneurial team and the innovation degree of products.

This type of innovation is represented by a completely new discovery or by an entirely original approach to a problem, which has a great impact on people's lives. Leap innovation highlights the transition from the unknown or unexplored rather than discarding the breaking with predictable innovation patterns.

Creativity and innovation are present at all levels of a business, starting from the management of the company and ending with elements pertaining to the development, branding and shape of products. Companies undergo rapid changes due to increasing competition and efforts to maintain or improve the market position. The results of creativity are those that render the company more attractive both to clients and partners. Briefly, the future and profitability of companies largely depend on their creativity degree. This is the reason why innovation requires both flexibility and rigidity – innovation without commercialisation is worthless.

Systematic innovation has seven main sources of innovative opportunities:

- unexpected (unexpected success or failure, unexpected side effects);
- incongruence (between the reality as it is and the one as it should be) among economic realities of an industry, among realities and assumptions regarding an industry, among efforts and expectations expressed by its clients;
- innovation based on the process needs;
- major changes in the industry/market structure;
- the demographic aspect;
- changes in the structure of perceptions, moods and meanings;
- new scientific and non-scientific knowledge.

A company is *innovative active* if it is involved in introducing a new or significantly improved product (good or service); unfinished or abandoned innovative projects; internal R&D expenses, training, exterior knowledge accumulation or machines and equipment acquisition that have some connection with innovative activities. *Wider innovation* refers to the fact that a company can change its structure or strategies.

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