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THE BLIND MEN AND THE ELEPHANT – A BRIEF ANALYSIS OF THE ROMANIAN STRATEGY FOR RDI

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Abstract: *Considering its close interrelation with the economic performance of the organizations, the concept of "innovation" has been extensively studied in the past decade, from a variety of perspectives (economy, business management, entrepreneurship, knowledge management, marketing). The result is that "innovation" appears to be so complex, and so difficult to understand and to assess, that it resembles the story about the blind men and the elephant. Therefore, the purpose of this discussion paper is to shed some light on the terminology related to innovation, in order to explain some of the fallacies of the Romanian national strategy for Research, Development and Innovation.*

Keywords: *creativity, innovation, national strategy on RDI*

1. INTRODUCTION

By comparing the Forbes list of most powerful and valuable brands (<http://www.forbes.com/powerful-brands/list/>), and the list of most innovative companies according to Boston Consulting Group (<http://www.forbes.com/sites/susanadams/2013/09/27/is-apple-the-worlds-most-innovative-company-still/>) (see Table 1), two things become obvious: first that there is a strong correlation between the capacity of the companies to generate (and absorb) innovation, and their economic power, and, on the other hand, that there is a large disparity between the USA and the rest of the world in this direction.

This conclusion is almost a literal transcription of an idea formulated 10 years ago by Hargreaves: "we live in a knowledge economy, a knowledge society. Knowledge economies are stimulated and driven by creativity and ingenuity. Knowledge society

schools have to create these qualities, otherwise their people and their nations will be left behind" ([8]).

In this society, the key resource for progress is no longer capital or labor – is *innovation*. ([6]).

Table 1. List of most powerful brands, versus most innovative companies in 2013 (Sources: Forbes and Boston Consulting Group)

Rank	Most Innovative Companies (BCG)	Most Powerful Brands (Forbes)
1	Apple	Apple
2	Samsung	Microsoft
3	Google	Coca-Cola
4	Microsoft	IBM
5	Toyota	Google
6	IBM	McDonalds
7	Amazon	General Electric
8	Ford	Intel
9	BMW	Samsung
10	General Electric	Louis Vuitton

But what exactly is “innovation”? Considering its close interrelation with the economic performance of the organizations, the innovation has been extensively studied in the past decade, from a variety of perspectives (economy, business management, entrepreneurship, knowledge management, marketing).

The result is that the concept of “innovation” appears to be so complex, that it resembles the story about the blind men and the elephant.

Therefore, the purpose of this discussion paper is to shed some light on the terminology related to innovation in order to explain some of the fallacies of the Romanian national strategy for RDI (Research, Development and Innovation).

Beyond this introduction, the paper is structured as follows:

Section 2 contains a brief description the conceptual framework related to innovation.

Section 3 presents the Romanian national strategy for RDI, and finally, Section 4 is reserved for conclusions.

2. CONCEPTUAL FRAMEWORK: INNOVATION AND ITS MAIN FACTORS

Barengesh et al. ([2]) counted as many as 60 different definitions of innovation. One of the earliest was proposed by Thompson in 1965 ([10]), and sounds pretty straightforward: “innovation is the generation, acceptance and implementation of new ideas, processes, products, or services”

For comparison, the definition proposed by Barengesh et al in 2009 sounds like this: “Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, services or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.”

In this paper, we prefer the definition proposed by Amabile in 1996 ([1]), which links innovation to creativity: “*Creativity is the production of novel and useful ideas in any domain*”, and “*Innovation is the successful implementation of creative ideas within an organization*”.

Jan Fagerberg in [7] brings supplementary clarification by emphasizing the difference between “invention” and “innovation”: “Invention is the first occurrence of an idea for a new product or process. Innovation is the first commercialization of the idea.”

Thus, the creativity is the process of developing ideas that are simultaneously new, original and valuable from a practical perspective (the inventions), while the innovation is the process of capitalization of the results within an organization.

In what concerns a model of the innovation at the organization’s level, De Jong ([5]) cites Buijs ([xx]), who proposed a “transformational model” as shown in figure 1.



Fig. 1 The transformational model of innovation (Buijs [3], apud De Jong[5])

In this model, “the transformation process itself is not described in detail: it is considered as a black box so there is little focus on the actual work processes themselves.” ([5])

For organizations as large as countries Bloomberg computes and publishes a so-called “Global Innovation Quotient” (www.bloomberg.com), based on economic and statistic indicators. The components and their weight in the GIQ are shown in figure 2.

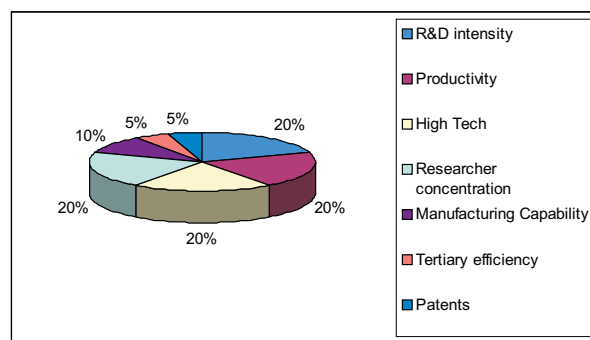


Fig. 2 The components of the Global Innovation Quotient, proposed by Bloomberg

The relevance and the weight of various factors in GIQ are questionable, mainly because they reflect to a very small extent the role and the quality of the education in innovation, and completely ignore other decisive factors such as the migration of the



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specialists and the organizational permeability to innovation.

Talking about the migration of specialists the famous physicist Michio Kaku said that the economic dominance of the USA is due to a "secret weapon", which is the H1B visa – the temporary work permit for highly skilled people.

The concept of organizational permeability to innovation can be illustrated in a negative sense by the example of the reaction of the society to the innovative ideas of Giordano Bruno in the Middle Ages, and – in the positive sense – by the example of Google, where the employees are allowed to spend 20% of their time working on creative projects at their personal choice. The impact of this rule exceeded any expectation: Susan Wojciki, vicepresident for Advertising at Google said that *"In a recent six-month period, half of Google's core initiatives started as projects during employees' 20 percent innovation time"* ([11]).

The Bloomberg GIQ has the advantage that it clearly defines the main factors of the innovation, and gives a unique measure to compare the innovation capabilities of various countries.

Regarding innovation, it is useful to introduce a distinction between "the big I" (the big innovation) associated with the introduction of exceptional scientific and technological discoveries (think of the discovery of the transistor, of the laser, or the apparition of the personal computer, or the smart phone, etc.), and Little innovation ("the little i"), which designates innovative initiatives of smaller impact, e.g. buying a machine to increase the work productivity, or acquiring the license to use a patent to improve a technological process, etc.

The dichotomy between "small i" and "big I" is to a certain degree similar to the concepts of "incremental innovation" versus "radical innovation". (see Koberg et al. [9]).

Obviously, the big I requires large investments in research infrastructure and highly skilled human resources (e.g. the Hubble telescope, or the LHC particle accelerator from CERN).

An interesting example of small I with – possibly – large effects is the concept of "open innovation", defined as the process of creating "inflows and outflows of knowledge" that connect the organization with the outside world in order to minimize the cost of the research while keeping a high innovation level ([4]). A typical example of using open innovation is the organization of idea contests on topics selected by the organizers. These contests offer (usually modest) financial incentives for the participants who propose the best solutions. This way, the organizers can benefit of a multitude of innovative ideas at the lowest possible cost. In the famous "grand challenges" organized by Bill and Melinda Gates Foundation, or in the competitions organized online by Innocentive Inc. (www.innocentive.com) there is a striking discrepancy between the importance and the difficulty of the proposed problems, and the amount of the rewards offered for solvers.

Despite its obvious advantages for the organizers, the concept of open innovation is largely ignored in Europe by the decision makers and by business.

3. THE ROMANIAN STRATEGY FOR RDI. A BRIEF ANALYSIS

In December 2006, the Government of Romania published "The National Strategy for Research Development and Innovation for

2007-2013”, later legislated through the Government Decision HG-217/2007 (available online in Romanian at www.research.edu.ro/uploads/legislatie/planul-national/hg-475.doc), with the declared objective to “recover the delays relative to other European countries [in the field of Research and Innovation]”. In 2013, by the end of the period covered by the above mentioned strategy, Romania ranked the 46th of 50 countries analyzed by Bloomberg according to the Global Innovation Quotient. Between 2007-2013, Romania did not win not even one grant funded by ERC (European Research Council – see the synthetic document:

http://erc.europa.eu/sites/default/files/content/ERC_in_a_nutshell_oct_2013.pdf)

In fact, very few of the objectives stated in the above mentioned national strategy were actually reached. Some of them are ridiculously unrealistic: for example, the strategy aimed to multiply by 10 the number of EPO patents per million people. Note that Romania was the only country in EU27 where the number of researcher actually dropped by more than 5% between 2005-2011 (see Innovation Union Competitiveness Report for 2013: http://ec.europa.eu/research/innovation-union/pdf/competitiveness_report_2013.pdf)

The main cause of the decrease of the number of researchers in Romania is the brain drain. We don't have official data regarding the migration of researchers, but considering the fact that over 22,000 physicians emigrated from Romania between 2007-2013, we can estimate that this phenomenon also affects other categories of skilled workers, including researchers. We don't have knowledge about any serious initiative of the Romanian authorities to stem this process.

It is also worth to note that most of the Romanian researchers don't even have an institutional subscription *to read* the high impact factor journals where, according to the Government strategies, they are supposed *to publish* articles.

The level of public expenditure for research, development and innovation should have been 1% of the GDP in 2010, and expected to raise at 1.5% in 2013. In fact, by the end of 2013 the value of this indicator was

only 0.49% of the GDP, a quarter of the EU average of 2%.

A thorough analysis of the relevant statistic data for the evaluation of the competitiveness of Romania with respect to innovation is available in the European document (EUR 25650 EN, 2013).

Perhaps even more serious than the underfunding of the research is the chronic underfunding of education. Though the Law of the National Education nr. 1/2011 stipulates the allocation of 6% of the GDP for funding the education, between 2009-2013, the amount of funding dropped from 4.24% to 3.6% of the GDP.

The result is that Romania has the lowest percentage of university graduates from the total population (21.8% see <http://www.6pentrueducatie.ro>) and there are no Romanian universities ranked in the top 500 world's best universities (Shanghai ranking) (<http://www.shanghairanking.com/ARWU2012.html>).

Even more harmful than the underfunding is the lack of consistency of the laws related to education. The Law of the National Education was often amended between 1995-2013, sometimes 2-3 times a year.

This is the general framework wherein the Romanian policymakers have launched the new National Strategy for research, development and Innovation for the time interval 2014-2020, (the document is available online <http://www.research.edu.ro/ro/articol/3343/strategie-nationala-de-cercetare-si-inovare-2014-2020>).

This new strategy has been produced by a large consortium under the coordination of UEFISCDI (The Romanian Executive Unit for Funding The University Education and the Research Development and Innovation), which comprises most of the research entities and public universities of the country (see www.cdi2020.ro for details on the consortium).

Predictably, the new strategy assimilates many of the objectives and priorities of the EU programme Horizon 2020, and maintains a more realistic approach in what concerns the expected progress of the innovation in



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Romania. There are still some unrealistic objectives (for example OS5 – the strategic objective nr. 5 – which aims at doubling the number of the researchers until 2020. It is unclear where these researchers will work, and who will provide funding for their activity.

We also noticed a clear strategic option towards developing “the big I” innovation: “The increase of the Romanian contribution to the progress of the frontier knowledge” Possibly, the paneuropean project ELI-NP (Extreme Light Infrastructure www.eli-np.ro), which will provide funding for building the worlds biggest laser in Romania encouraged this option, but, considering the results of the strategy 2007-2013, it is not sure that Romania is capable to sustain the big I option on a long-term basis.

In what concerns “the small I” innovation, it is worth to mention the initiative called “innovation vouchers” intended to directly support innovation in SMEs.

One major drawback of the new strategy for innovation in Romania derives from the fact that there is no reference to the link between education, creativity and innovation.

The strategy does not consider at all the brain drain, and as a consequence there are no measures to stem this phenomenon.

The open innovation is totally ignored, and so is the obvious need of the researchers to have access to the latest and most valuable scientific publications.

4. CONCLUSIONS

To conclude this brief review, we appreciate that the overall situation of the education, research and innovation in Romania - at the decision makers level - is rather daunting, and it is hard to believe that it will

score spectacular improvements in the near future.

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