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Article

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Some aspects regarding the concept “Research for Business”

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Abstract: Paper presents some aspects regarding the scientific research in universities or research institutes oriented to fundamental or practical aspects. It is known that a researcher must publish his work, but the problems are: publish as single or multiauthors, in ISI or domestic journals, in international proceedings conference having ISBN, to protect the new information as IP national or international organization. The permanent process of research for business, its compulsory steps, the role of innovation and business incubators, are as supporting elements for SME's growth. Beside the facilities offered to SMEs, other benefits come from creating a business incubator, such as: developing innovative products, product design, prototyping, technological transfer and nevertheless, registration and exploitation of intellectual property rights, coming from the obtained products of research. In order to be even more practical, we chose an example of a functional business incubator, ITA Pro-Energ, and showed the facilities that it offers to its incubated SMEs, as well as their improvement on market position.

Keywords: scientific research, incubator, technological transfer, business, sustainable energy

1 Introduction

In academic world teaching professors or other researchers are interested to prepare, present and publish articles, to publish their scientific activity. What is more important for an academic researcher in the way to satisfy and influence the academic needs, research prestige, university needs a.s.o.?

The research activities in Universities and in R&D Institutes are oriented in two directions: fundamental and practical research. In this moment when the industrial development is very fast, the problem to resist with products on the market is to be very flexible, to introduce new innovative products, in the way to satisfy the client needs. It is very known that the fundamental research is good, maybe not useful in a moment, but in time, when there are satisfied all the conditions, it can be practical for industry (an idea is valuable when her time is coming; we can resist to an army invasion, but not to an idea who's time is coming- Khata-Upanisad).

2 A point of view about international academic research

A researcher must published his scientific research in journals, may be as single or multiauthors, ISI journals or domestic, or in international conference proceedings having ISBN, to present to the community their works and to measure their work in academic university.

Some questions are important for this subject:

1. Measurement of scientific works can influence the quality of papers?

Measurement of scientific productivity is difficult. Measurement of scientific works influences the quality of papers. The measures used are crude. But these measures are now so universally adopted that they determine most things that matter: tenure or unemployment, a postdoctoral grant or none. Usually it is necessary to complete a time sheet points. As a result, teachers/researchers are forced to publish as many papers as possible, about their discoveries and trying to work them into high impact-factor journals. Consequently, scientific behaviour has become distorted and the utility, quality, and objectivity of articles have deteriorated (Adler & Gundersen, 2008; Lawrence, 2008).

2. In which publications to include papers?

Many articles would be better appreciated, published more quickly, and perhaps have more impact if they were published in specialized journals. However, because specialized journals tend to have lower citation impact, or are less well known, they are avoided by young researchers trying to build an impressive promotion file (Lawrence, 2008). This is an understandable strategy, but one that ultimately

slows the diffusion of ideas into the research literature and stifles academic dialogue.

As so often happens with indicators of performance, the quantitative indicator has become the target, but forgotten in the desperation to win the game is publication as a means of communicating research findings for the public benefit.

Those who construct ranking systems must not only choose which categories of publications to include, but also decide on how to weight publications based on journal prestige and authorship criteria.

3. About prestige: what is most valuable?

Is publication in a field's top-ranked journal(s) more valuable than publication in a journal of lesser rank (Adler & Gundersen, 2008, MacDonald & Kam, 2007)? Some articles, for example, published in prestige journals like JIBS (A level journal) are more valuable, and therefore, should be more heavily weighted, than articles in other journals. Based on its 2007 ISI journal impact factor, JIBS was ranked as one of the top-7 business journals in 2008. Most current rankings continue to be winner-take-all systems, with authors receiving equal credit for articles published in selected "A-list" journals and receiving no credit for articles published in no listed journals or for books, book chapters, or conference proceedings. As a field, we must ask if such binary metrics (on or off the A-list) enhance or detract from the discipline's ability to recognize and support research that matters or even to accurately and equitably assess the contributions of individual scholars and institutions (MacDonald & Kam, 2007).

4. About invisibility: researches must be published in new, innovative or specialized journals?

Many sub disciplines are underrepresented in the databases used to calculate the most commonly used, and supposedly "objective," measure of journal "quality": the ISI journal impact factor (which actually measures influence, not quality). This is particularly true for journals in accounting, management, marketing, strategy, a.s.o. Perhaps more important, new (often highly innovative) journals are systematically excluded from the rankings. The ISI Social Science Citation Index enforces a mandatory 3-year "waiting period" for all new journals (Adler &

Gundersen, 2008; MacDonald & Kam, 2007). Once accepted for inclusion, there is a subsequent 3-year “study period.” Thus, at the earliest, a journal can receive its first official impact factor (IF) in the Journals Citation Report 6 years after its inception. Because articles published in new journals remain invisible to most citation indices, they also remain invisible to almost all ranking systems. The journal impact factor (JIF), is the mean number of citations received in a particular year to articles published in a journal in the preceding 2 years (Segalla, 2008).

5. How is more weighting: single versus multiauthored articles?

Another decision is whether to assign equal weight to authors of single- versus multiauthored articles. Where as there are advantages to both approaches, bibliometricians agreed that fractional equivalents are more equitable and

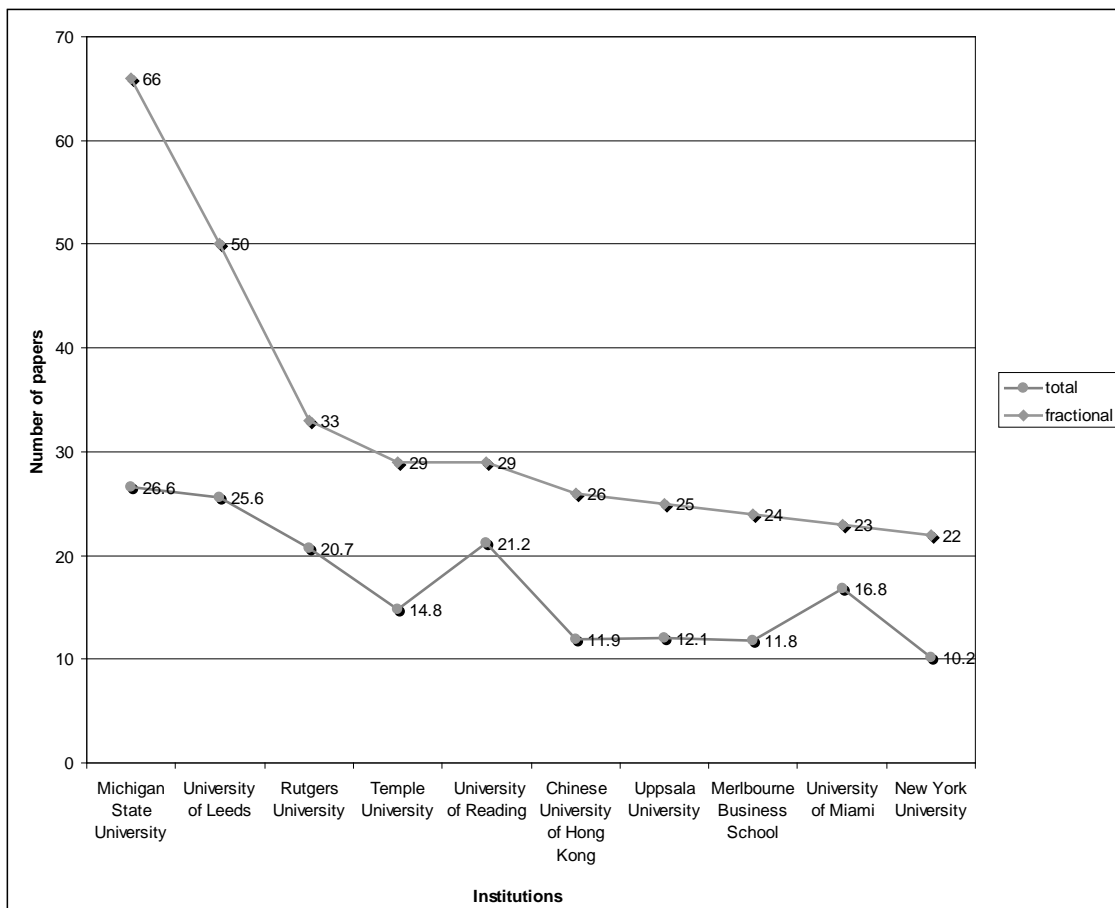


Figure 1. “Number of papers in universities/total or fractional authors”. Source: Adler & Gundersen, 2008

appropriate (also in Transilvania University of Braşov). Fractional equivalents are calculated by assigning $1/n$, where n is the number of authors, for each article an author has written. Fractional equivalents are now favoured in most, but not all, ranking studies, and an increasing number of universities recognize that promotion-and-tenure decisions are most justifiably based on fractional equivalents rather than simple article counting.

Overall, differences in productivity assessments among universities are generally smaller when fractional equivalents are used. Is it good for universities to report a great number of authors, in the same time with the number of articles (Adler & Gundersen, 2008; MacDonald & Kam, 2007).

An example is given in Figure1 (Adler & Gundersen, 2008), where a university is in the top ranking using fractional weightings. As we can see 1st-ranked is Michigan State University and 2nd-ranked Leeds University. The reason is evident: Michigan State has the highest average number of authors per article among the top-10 ranked universities.

6. Weighting the first author means recognizing him as leadership?

A similar decision is whether to give more weight to the first author of a multiauthored article. Most ranking studies, unfortunately, continue to systematically ignore whether an author of a multiauthored article is listed first. Authors (and their affiliated universities) who are frequently listed last on multiauthored articles therefore could be viewed as prolific, even though they have never provided research leadership. At the individual level, this is particularly serious, including frame-breaking research, depend on individuals assuming leadership.

“When we, as academics, plead powerlessness in choosing what we research because of incentive and reward systems, we dehumanize our careers and our lives.” (Segalla, 2008).

3 The role of knowledge and creativity in learning processes

Knowledge plays a key role in the process of innovation by SMEs in medium technology sectors, where innovation is based on the capability to informally search for a solution to local problems together with other partners. This process is

different from the formal research activities in the high technology sectors. It is well known the “Triple Helix”, in which there is a good relation between research departments, developing department, implementing department, in the creativity process.

Using the Figure 2 it can be seen the way and the stages from the market demands to industrial development of the innovative companies.

For the very beginning (I) market represents a stimulus in technology development, new technologies are necessary to stay on market, to realised products at the right price, price imposed by the concurrence, and also by the customer’s demands. Knowing the market demands the second stage (II) is about new innovation projects, new aspects concerning product design. After the project stage the process is continuing with innovation adoption, and finally, the industrial development of the innovative SMEs.

As we know the R- research entities involved in P- innovative products are depending on G –government policies, and I – industry possibilities, presented in Figure 3.

A new concept for research to business is to accept the “Four-leaf clover” (Figure 4), a good relationship between academia, industry, government policy and also using consulting companies (INNOVA, GTZ, PROVENDIS a.s.o.).

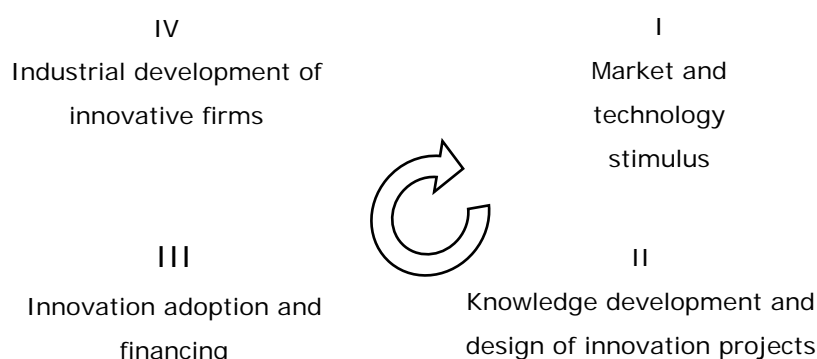


Figure 2. “The fields of innovation”.

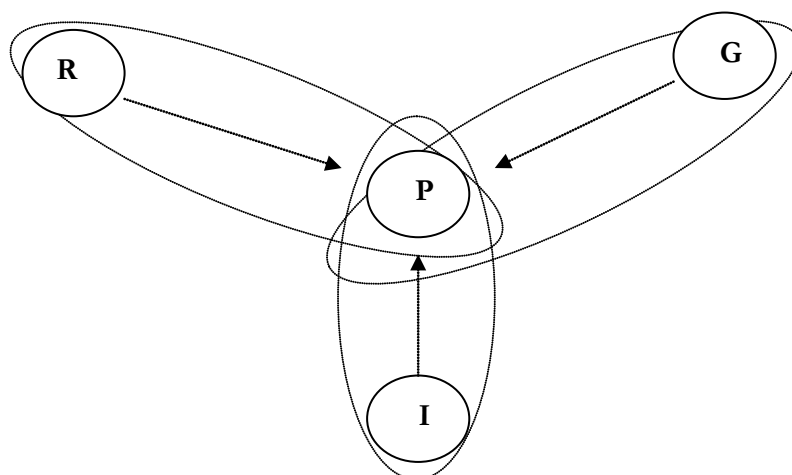


Figure 3. "Triple helix to product development".



Figure 4. "The Four-leaf Clover Model".

4 Research in Transilvania University of Braşov

In Transilvania University of Braşov research is made by: teaching professors, students in general, students in their last year of licence, doctoral students' a.s.o.

A situation of papers and grants in 2008 and 2009 is presented in table 1. As we can see there is a difference between 2008 and 2009, reporting the number of papers, and also the practical aspect of them.

Type of papers/grants	Year 2008	Year 2009
National papers	595	632
International papers	1046	1932
ISI papers	120	172
Fundamental papers	321	380
Practical papers	1440	2356
Total papers	1761	2736
Practical grants	133	152

Table 1. "Research in Transilvania University of Braşov". Source: GESFO, UTBV

As we can see there is a difference between 2008 and 2009, reporting the number of papers, and also the practical aspect of them.

The research in technical universities is oriented in two directions: some of them being fundamental studies (e.g. mathematics, physics, material science a.s.o.), and a lot of studies are oriented to a practical applicability, for example to a real product, this one having a strong innovative character.

Between researchers and companies are structures oriented and having the market for the technological transfer, as a good example is the technological and business Incubators, the specific activities in these entities, strategies of incubation's process, selection of incubates, incubation spaces, having a real example, ITA Pro-Energ, an institution built under "Transilvania" University of Braşov, having like research applications "Products and Technologies in Sustainable Energy".

The real problems are:

- How many of practical papers have an industrial application?
- How many of papers represent an industrial product?
- Are they prepared for the technological transfer?
- The authors do they find a company who can produce and sell the new product?
- How many new aspects are in the new product?
- The new inventive aspects are protected by law?
- How did companies and the market receipt the new product?
- The new product as prototype was presented in industrial fairs?
- The investment in advertising was making by whom?

The technological transfer of new/innovative products is the aim and basic activity of the ITA Pro-Energ incubator "Product and Technologies for Sustainable Energy", developed near Transilvania University.

As we know (Săvescu, 2009; Săvescu, 2008) the incubators' objective is to increase, for these companies, the chances to grow up and survive (start-up or spin-off). This objective can be accomplished due to the supplying of modular spaces with common services (copiers, communication services, and computers) and an enrolment for specific services (production spaces having modern technology). The accent essentially is on local development and creation of new jobs, technological orientation coming second, representing a property initiative which assures a small office and/or manufacturing units for new or young companies. It usually assures a flexible work space for accessible prices, common services and direct affairs consulting, access to specialized assistance (such as support in R&D and risk capital) (Săvescu, 2008).

Business Incubators transform an idea into an opportunity. Once the idea is moving, the contractor's way is open and it's time to look for the working instruments. These instruments include business analyses, management, marketing and technological support. They also include the business software, communication skills and presentation means.

The Incubation and Technological Transfer Program aim, objectives, possibilities offered to companies where presented in other papers (Săvescu, 2008).

An example of well functioning business incubator is The Technological and Business Incubator "Products and Technologies for Sustainable Energy" (ITA Pro-Energ), build within "Transilvania" University of Brasov, certified to work from February 2008. It was created to initiate and develop innovative companies, based on advanced technologies in the field of Sustainable Energy, especially in: industrial processes' energy efficiency, renewable energy systems and buildings' energy performance. The strategic goals, objectives, and the organizational chart are presented in papers (Săvescu, 2008; Săvescu, 2009).

ITA Pro-Energ is affiliated to: ARoTT – Romanian Agency for Technological Transfer; RENITT – The National Network for Innovation and Technological Transfer and an active participant in an international consortium that belongs to BISNet network, affiliated to the European Community Network, EENet.

Following its goals and the very essence of a business incubator, ITA Pro-Energ offers its incubated SMEs all sorts of facilities, helping companies to start-up and

evolve, preparing them for the most important confrontation with the real, competitive market.

In Figures 5, 6, and 7 are presented modular spaces for incubated companies, teaching and meeting space and logistic support offered, performing machineries with great prototyping capabilities.



Figure 5. "Modular spaces with common services".



Figure 6. "Teaching and meeting space".

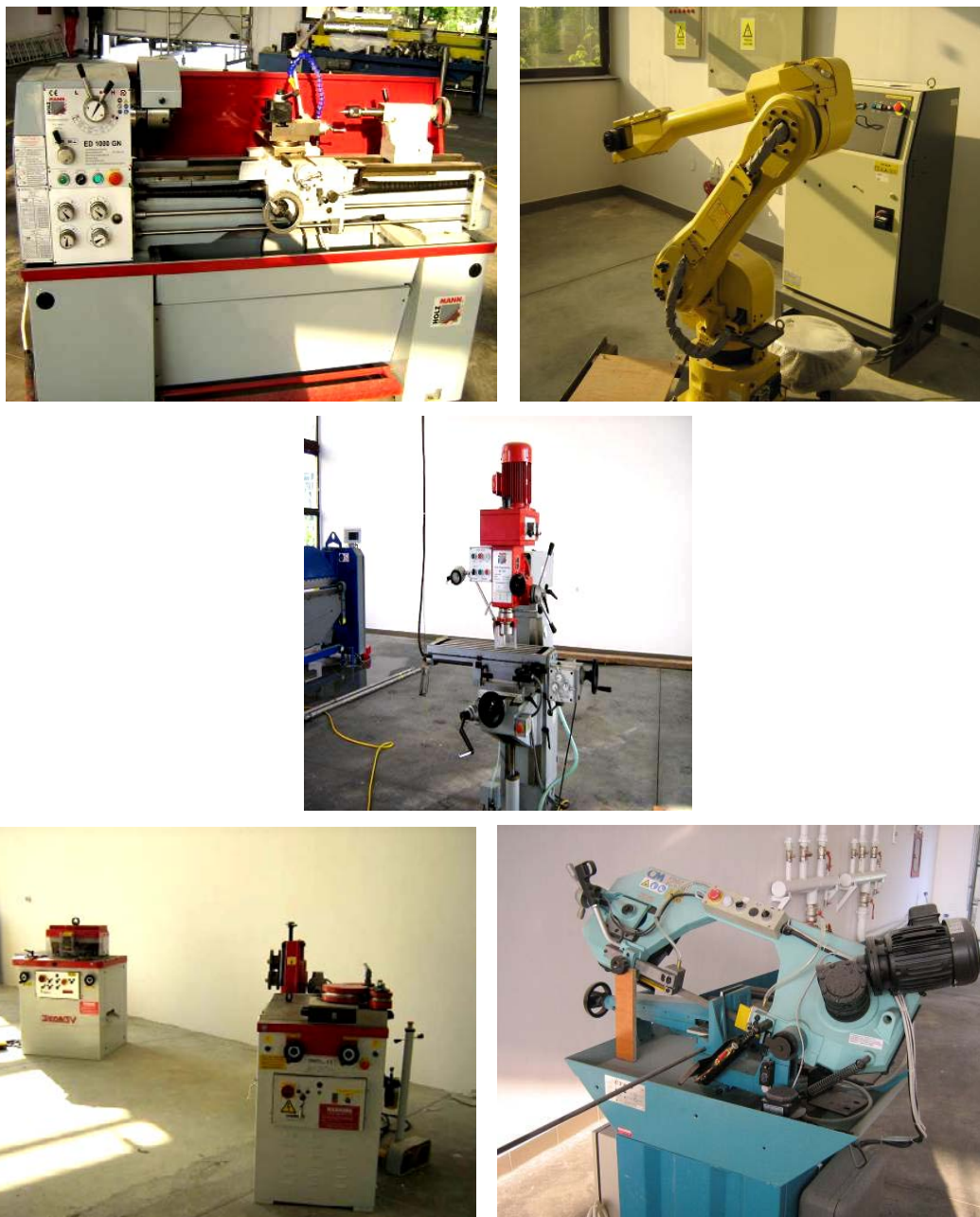


Figure 7. "Logistic support, performing machineries with great prototyping capabilities".

In present time, there are 7 real incubated SMEs and 4 virtually incubated ones. They all benefit from the facilities offered by the incubator and beyond any reasonable doubt, have developed, proved themselves on the market already (although the time since incubation started is quite short) and most definitely will maintain their share market in the future, if not conquer more and more of the specific activity field layer.

As incubated companies and activities objects there are:

- S.C. ECO TECHNOLOGY S.R.L.: design, production, implementation of hydro-energetic systems.
- S.C. THERMOFIX S.R.L.: design, selling, putting in order, maintenance, equipments for alternative energy (solar panels, PV panels, heating pumps, afferent equipments), design, and execution buildings, civil and industrial installations.
- S.C. ORIENT EXPRES S.R.L.: design, selling, putting in order, maintenance for air and powders transfer equipments, equipments for alternative energy, design and execution of civil and industrial constructions and installations.
- S.C. JIRMAN ENGINEERING S.R.L.: design, execution and implementation of wood houses and components.
- S.C. ELETTRONIKA RESEARCH S.R.L.: design, execution and implementation of digital and analogical systems in telecommunications, personalized software, satellite telecommunications, research and develop DVBT2 apparatus and ATSC, control of intelligent mechanical systems for alternative energy.



a - Wood houses



b – Composite elements for wood constructions



c - Formula Student car



d – Micro Hydro

Figure 8. "Some innovative products".

As virtual incubate companies there are: S.C. REGAL AMESER S.R.L.(design, execution, implementation for wind energy systems); S.C. IDTECH S.R.L.(design, execution, implementation for civil and industrial constructions and installations); S.C. CAMIRO ENGINEERING S.R.L.(design, execution, implementation for mechanical couplings with industrial practicability); S.C. TECHNOLOGICAL, INVENTION AND BUSINESS CENTRE S.A(design, execution, implementation for hydro and wind energy equipments, PV panels, prototypes; regional center for IPR, agreed by OSIM and EPO, partner with IP Department in Transilvania University of Braşov).

In Figure 8 there are presented some of their products offered to the Romanian or international market, presented in fairs last year.

5 Conclusions

The research for viable businesses is a risky and exhausting job, but has a huge final reward: economic success.

The existence of business incubators near universities, research institutes, R&D platforms, definitely stimulates entrepreneurial initiative, improves the innovative spirit, and contributes to regional technological development and economic growth.

Big companies have their own resources, but they are distant in assuming the risks that comes from a quick development of the innovative field. SMEs are more flexible and, interested in sustaining innovative activities but, they have no human, material or financial sufficient resources that are vital for innovative process's ignition.

Through their services, the business incubators are a real supporting instrument for new-born SMEs, hopping to evolve to the rank of recognized competitiveness elements on the market.

The wordy example to be followed, ITA Pro-Energ, offers today to its incubated SMEs modern location, offices endowed with all needed facilities, training, consultancy (including on intellectual property rights), financial facilities, access to the micro-production and testing infrastructure, prototyping and micro-production workshop, modern manufacturing line for products in the field of sustainable

energy, testing – homologations laboratory, material testing and characterizing laboratory,

What is not to be forgotten, since is very important for the entire economy, is the opportunity to technological transfer, TO/TR technologies or products. ITA Pro-Energy has directed its effort to perform this important operation especially in sustainable energy field, alternative solutions for heat pumps, wind turbines, PV panels, wind energy or micro hydro-power.

There are papers in which are presented aspects regarding the academic research, the measurement of research, number of papers published by year, ranking of journals, scientific conferences, single or multiauthor on paper, the academic prestige, the national or international recognition, the value of paper as fundamental or practical research, prepare for technological transfer to the industry, to the market, in the way to satisfy the market needs. In innovation process and implementation in industry are involved many factors, including technical possibilities of SMEs, governmental policy, financial potential, and also using consulting companies.

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