# HOUSE OF INNOVATTION – HOLISTIC DIAGNOSTIC APPROACH TO PRACTISES IN INNOVATION MANAGEMENT

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Abstract: Increasing global competition, product life cycle stealing, new scientific findings and demanding customers represent challenges for innovation management. There is no strength as essential as an ability of differentiation by excellent products or services at attractive markets in long-term period. Innovation provides sustainable market success. Therefore, it is one of the key strategic success factors. The purpose of this paper is to present and discuss knowledge and findings of original primary research into South-Moravian companies within two research projects of Internal Grant Agency Faculty of Business and Management Brno University of Technology, which have been conducted in 2009 and 2010. The research projects have been focused on innovation management and its assessment. Author proved with help of questionnaire survey that in many companies an unsuitable model of innovation process management is employed. There is no clearly defined problem description, innovation project management, coordination of activities, communication or cooperation. Vague objectives cause changes in the stages of the innovation process, missed deadlines and increased costs. This finding is not affirmative for our business environment. Therefore, the paper presents solution of this problem which is seen in holistic approach to innovation management developed by A.T. Kearney and called "House of Innovation".

Keywords: innovation, management, assessment, value.

## 1 Introduction

Innovation is essential for future success, in particular in economies that can no longer compete on cost. Competitive advantage of the Czech Republic has been based on cheap and relatively qualified labour force and on energetic and material-intensive production [5]. However, this competitive advantage is just temporary in global circumstances. As a consequence, western companies, including Czech companies, need to continuously anticipate customer needs, generate attractive ideas, and transfer them into successful products, processes, services and business models. This requires both a systematic management of innovation and the appropriate alignment of the internal organization. Industry leaders are demonstrating day-by-day how to achieve profitable growth by focusing on innovation. Those who have to develop their innovation capabilities will have to develop a proven approach and tools to manage innovation with the aim to maximize effectiveness and efficiency while focusing on the generation of sustainable value.
Only basic innovation management capabilities are no longer sufficient to compete in the globalized business environment. Producers from so called low-cost countries are continually enhancing their ability to create products with high quality and at faster speed. Several well-known players from these economies are becoming a dominant source for certain products and technologies, e.g. electronic components, LCD panels, or whole laptops. In parallel, national investments in their educational systems are resulting in an increasing number of well-educated engineers and scientists in those countries.
Meanwhile, corporations in the western world are losing ground and their innovation performance is not generating the competitive advantages that it once did. Market and technology dynamics are often under-estimated and the necessary speed is lacking even while global innovation dynamics are accelerating. As a consequence of these changes, professional innovation management is becoming an even more important key success factor in achieving higher profitability and superior growth. Companies that have begun to approach innovation management in a more systematic way have achieved significantly higher success rates in terms of transforming ideas into marketable products and realizing successful innovation commercialization.
Companies in industry countries have to be focused on innovation. European Community head competitiveness and sustainable development through the innovation in the focal point. Industry and related services are still driving force for innovation. Their share on GDP is about 37% – with 80% investment in R&D. Never in history of European Community was innovation so important like it is now [7].

## 2 Primary research results in the field of innovation management

### 2.1 Research methods and material

Under the auspices of the Internal Grant Agency of the Faculty of Business and Management at Brno University of Technology, a questionnaire survey was conducted in 2010 with a goal to ascertain the on-the-ground situation in the development of innovation management in our companies.
The list of respondents was carefully considered before the start of the project. Options for defining research limits were company size, industry and geographical location in the Czech Republic. After a careful consideration, the decision was taken to conduct research in randomly selected big companies in the South-Moravian Region of the Czech Republic. The research was limited to the South Moravian Region because we believed that it would enhance the informative value of questionnaire surveys. Thus limited research is of much better quality because it allows (in spite of the often-encountered reluctance to complete the questionnaire and to cooperate) to gather data from a large number of companies in the region, which may not have been possible for the whole of the Czech Republic, and individual data would have been much too scattered.


Figure 1 Map of South Moravian Region

A total of 53, mostly production, companies participated in the first research project called *"Research of a level of development of innovation potential, creation, and evaluation of the innovation strategy of medium-sized and large machine-industry companies in the South Moravian Region in the Czech Republic"*. This project uncovered several unfavourable findings on the state of management of innovation activities. Therefore, this area was examined in detail in the second related research project called *"Development of knowledge for improvement of information support of the economic management of company development, in accordance with development of the business environment"* undertaken in 2010. This related and more extensive research took place from February to June 2010. The key was to approach as many respondents as possible and, therefore, to acquire a sufficiently large data scale factor for evaluation of the primary research. The inquiry itself provided quantitative, as well as qualitative data on the current state of the issue in question. When designing the questionnaire, an important factor was to make it simple and relatively brief because that may influence the respondents' willingness to complete it. At that stage, we strived to contact as many South Moravian Region companies as possible. The types of questions used were:

- Multiple choice questions with a single answer,
- Multiple choice questions allowing for several answers,
- Questions with pre-defined answers and a rating score,
- Several questions allowed for completing free text answers.

Question surveys were conducted in two ways. Electronic questionnaires were emailed to respondents. This form of inquiry is very useful because it is easier to both complete and especially evaluate such questionnaires. A small disadvantage is the absence of a personal contact between the interviewer and the respondent which rules out the possibility of seeking additional information or giving explanation if a question was misunderstood. This disadvantage can be eliminated in a subsequent telephone or e-mail conversation. The other type of survey was through a personal contact with higher-level managers, executive officers or company owners in the South Moravian Region. This type of inquiry gives the respondent chance to fully understand the issues addressed, and it also permits a discussion on the given topic, in which often valuable information on issues studied can unexpectedly be encountered. The disadvantage of this approach is that it is very time-consuming.

In view of the objective set for research projects, i.e. *to map and study the current level of innovation management and innovative performance as these issues are reflected in the contemporary Czech and foreign academic literature and in Czech corporate practice* – and the manner of their implementation, scientific methods of work, i.e. logical methods including analysis, synthesis, induction and deduction, were used in the processing of the research.

Analysis was used in the study as a method for obtaining new information and its interpretation. Synthesis is primarily used in making conclusions. Induction was used mainly in generalizing all the findings obtained in questionnaire surveys. Deduction was used to check the dependencies ascertained.

Of a total of 800 respondents contacted during the 2010 questionnaire survey, 750 were contacted electronically and 50 received printed questionnaires during a personal meeting. Companies for the electronic survey were selected from the Technological Profile of the Czech Republic (www.techprofil.cz) database of contact addresses, and the world-wide database Kompass (cz.kompass.com) with its over 34,000 contacts to Czech companies was also used. The guarantee that innovating companies are selected from the database lies in the fact that database search is performed according to user-defined parameters. The selection of companies for personal visits was based on contacts made during our previous project. That provided guarantee that the survey will cover companies actively engaged in innovations that have something to say on the issue. We received a total of 139 correctly completed questionnaires, which represents a 17.4% return rate. Detailed statistics of the 2010 questionnaire survey are in Table 1.

Table 1 Overall statistics of the questionnaire survey 2010

| | |
|---|---|
| Number of addressed companies | 800 |
| a) by e-mail | 750 |
| b) by personal visit with printed questionnaire | 50 |
| Number of undelivered e-mails | 35 |
| Number of partially filled questionnaires | 9 |
| Number of completely filled questionnaires | 139 |
| Real return | 17.4% |

**2.2 Results of primary research**

In South Moravian Region in the Czech Republic, those most engaged in innovations are micro companies (43 %) and small companies (33 %) that have a Czech owner (82 %); of those, 39 % operate on the domestic market within the whole Czech Republic and 27 % operate only on the regional market.

During the last three years, the majority of innovations executed by companies were organization and marketing innovations; however, companies perceive product and process innovations as more important. It generally applies that almost every product innovation should invoke at least one process innovation. When, for example, a company begins to produce a new product, a need for necessary technology that is needed for production of a new product can arise. Such a need can be fulfilled by purchase of new machinery. This is innovation of a production process. In other cases, companies maybe do not even perceive changes executed in relation to product innovations as process innovations. When a company, e.g. as a result of a new product supply, modifies activities of its sales department, in reality it is a process innovation invoked by the initial product innovation. In some cases, even product innovation of a lower intensity invokes subsequent process innovation of a higher intensity.

Results of our questionnaire survey made it possible to identify important failures and gaps in innovation management in our manufacturing companies. Concrete practical conclusions of primary research can be summarized as follows.

- In most cases, innovations are not a company's key process, and more often than not they are based on technology transfer rather than the company's internal research and development.
- Research and development activities start late, take too long and are expensive. This causes time loss and delays in marketing innovations. That in turn negatively impacts profits.
- There is no systematic methodology for the use of a company's innovation potential. Innovations are often confused with methods for a new product development with no relationship to the customer.
- Indifference and unwillingness of owners and top-level managers to take risks even in the case of promising innovations is manifest, and the prioritizing of certainty prevails.
- In companies, insufficient innovation culture predominates, which can of course be traced back to the lack of top management's interest.
- An unsuitable model of innovation process management is employed. There is no clearly defined problem description, innovation project management, coordination of activities, communication or cooperation. Vague objectives cause changes in the stages of the innovation process, missed deadlines and increased costs.
- There is no marketing information system in place for the modelling of future markets or the analysis of customers, their behaviour and unexpressed needs. Such insufficient knowledge of market requirements is a reason for excessively high innovation costs.
- No comprehensive evaluation of innovation benefits is performed. In most cases, evaluation is done on the basis of economic parameters only. This approach relies on successful determination of expected innovation-related revenues, which is very difficult, especially in initial stages of the process when it is not clear what the new product will look like and who its target customers will be.

Methods of solution of such insufficiencies were examined by researching professional literature of prominent Czech, as well as foreign authors and other sources, with the objective to contribute to a flawless, if possible, realization of innovation activities of a company. Such solution is seen in a holistic approach to innovation management developed by A.T. Kearney and called “House of Innovation”. Next chapter is going to present basis and principles of this holistic approach as it is described by A.T. Kearney in its studies.

**3 A.T. Kearney's House of Innovation**

A.T. Kearney's research has shown that companies with sophisticated innovation management are twice as profitable and grow significantly faster than their competitors with no innovation management system [4].

Innovation does not mean just R&D. Innovation means continuously turning knowledge into "profit" by addressing future customer needs better than the competition. Innovation here can be product, process, service, and/or business model innovation, and is the responsibility of multiple functions and top management, not just the R&D function. Therefore total innovation spending is much higher than just the spending on R&D. Similarly, innovation management does not mean just innovation development. Best practice innovation management begins with innovation strategy and continues through innovation development to management of the entire innovation life cycle. As a result, common innovation management improvement opportunities across industries span from missing innovation strategies to slow innovation development to lacking proactive complexity management in the innovation life cycle.

### 3.1 Holistic approach to Innovation management

Innovation is the result of a company's efforts to develop new products, new services, new business models or processes in which their customers see a new or additional value added, and for which these customers are willing to pay a price. Hence, innovation is not just an invention. Innovation has to prove its value in the market.

A.T. Kearney's holistic approach addresses all relevant innovation management dimensions. To ensure a steady flow of innovations, companies have to continually and systematically manage them. This includes innovation favouring components such as:

1. An innovation strategy that is aligned with the business strategy,
2. An organization that drives innovation by its structure and culture,
3. A product-life-cycle process that continually develops the capabilities for idea generation, product development, market launch and timely discontinuation of products and services that are no longer profitable,
4. Enabling factors for innovation management with regards to IP, Knowledge, HR, Controlling-and IT Management,
5. Innovation management success with regards to the right key performance indicators to monitor and measure innovativeness.

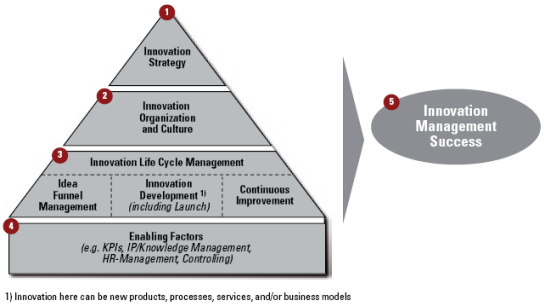


Figure 2 A.T. Kearney's House of Innovation and its four dimensions of innovation management [2]

The success of innovation management can only be made sustainable if these dimensions are addressed at all levels of a company on a continuous basis. Because innovation management covers all aspects fostering the innovation capabilities of a company, all of these components must be managed to secure the company's long-term growth. Therefore, only a holistic view of innovation management can achieve sustainable innovation and growth of a company.

For example, a company that was not fully satisfied with its innovation performance asked A.T. Kearney for an innovation management assessment. The company's current innovation management performance was evaluated and compared to external benchmarks. The gaps identified pointed to the need for improvement in all dimensions of the House of Innovation. A project list was then developed consisting of all required actions, including:

- Define a comprehensive innovation strategy based on understanding of macro trends and customer needs,
- Create a separate New Business Development organization to focus on new technologies and new markets,
- Increase share of new ideas generated by external partners from 5% to 30%,
- Improve innovation development management to sooner stop low-potential projects,
- Create cross-functional teams responsible for both launch and post-launch life cycle management,
- Implement a new portfolio management IT system to automatically track and generate innovation performance KPIs. [3]

Four of these six measures were prioritized based on business impact and ease of implementation. The prioritized measures were then anchored in a roadmap for improving innovation management over the following 15 months.

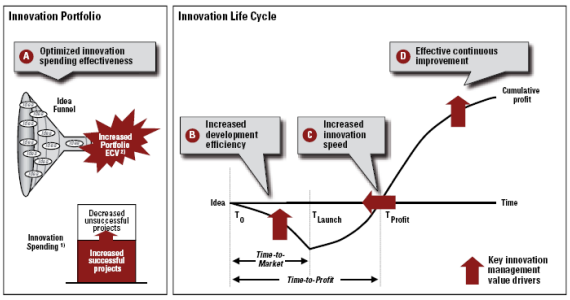


Figure 3 Value impact of improved innovation management [3]

Achieving best practice in all areas of the House of Innovation generates tangible value for a company. This value can be identified and measured in terms of four value levers: Optimized innovation spending effectiveness, increased development efficiency, increased innovation speed and more effective continuous improvement.

A *Optimized innovation spending effectiveness:* Increase the effectiveness of the innovation spending through a defined innovation strategy and by a better funnel management.

B *Increased development efficiency:* Increase the development efficiency through measures such as increasing engineering capacity utilization or innovation globalization in order to minimize unit cost while ensuring required quality levels.

C *Increased innovation speed:* Accelerate the product ramp-up to minimize time-to-profit by optimizing processes and by leveraging an innovation network.

D *Effective continuous improvement:* Achieve continuous improvement with measures such as lean design and complexity management to order to optimize product life cycle profitability.

By systematically achieving best practice in all elements of the House of Innovation and therefore addressing all four innovation management value levers, a company can – even in Western Europe – increase its competitive advantage and profitably grow in spite of pressure from new competitors from emerging markets.

### 3.2 A.T. Kearney House of Innovation – a diagnostic approach to innovation management measurement

The performance of the Innovation management capability assessment relies on the quality of the diagnostic design. As the A.T. Kearney studies [1], [2], [4] revealed, the challenge is to choose an appropriate diagnostic design so to thoroughly measure innovation management in SMEs. This system has to base on incorporates processes, activities, structures and/or cultural aspects of innovation management. At first glance, these models often seem to coincide, but a closer look reveals that they differ in that they take into account the organizational

pervasiveness of innovation and its socio-technical connectedness. On the one hand, there are specialized approaches to evaluate the detailed performance of certain dimensions, for example, tools based on best practices in new product development that focus on life-cycle related issues. On the other hand, there are systemic approaches that take a holistic view on innovation management but are lacking in thoughtfulness. This group of assessment tools consists of the following three subgroups:

- Technological, new product development and life-cycle management focus,
- Innovation organization, culture and climate focus,
- Systemic and quality-oriented innovation management approaches.

As technological innovation and new product development are well known innovation practices, models are often generated in the context of technology. These assessment tools illustrate core processes and enabling processes relevant to new product development and overlay them with traditional performance measures.

Core processes comprise new concept development, product development, redesigning the production process, redesigning the marketing process, managing knowledge and technology. In addition, cultural aspects are addressed; however, they play minor roles. The advantage of these tools is that they seek to link processes and performance.

Tools with a technological and new product development focus are difficult to transfer to other industry sectors where "soft" innovation (such as service innovation) is dominant. In addition, these tools often do not address organizational and socio-technical dimensions. However, in newer versions, cultural and organizational issues are partly considered.

Secondly, there are other tools that focus on specific dimensions of innovation, including innovation culture, climate and leadership. Critical success factors address aspects such as risk taking behaviour, motivation of employees, entrepreneurial culture, value and norms supporting innovation, and quality of leadership. Although these tools provide valuable insight into the strengths of the company in terms of one dimension, they do not sufficiently take into account strategy or life-cycle related issues. This group of tools takes a systemic and quality-oriented perspective on innovation management.

Holistic and systematic models that address the complete ecosystem of innovation show a significant overlap with the A.T. Kearney House of Innovation. In addition, they are often designed to be applicable to any industry, innovation type, and size of an SME.

Although other system-based models – such as EFQM or the Malcolm Baldrige Award – have been developed over many years and considered robust measurement concepts, innovation is only a small component of these tools. Recently, new tools have emerged that are based on the EFQM quality frameworks of innovation. For example, one self-assessment tool developed by an Irish intermediary assesses the innovation capability of SMEs based on the EFQM quality framework. Although this initiative seeks to set a new standard of innovation capability assessment, the tool has not been adopted on a large scale.

The innovation performance measurement of the organization must take into account all factors influencing the innovation. To cover all these factors holistic A.T. Kearney House of Innovation can be used. It covers all dimensions of innovation management as well as factors supporting innovation management development in the organization. It involves the innovation strategy, innovation organization and culture, innovation life cycle management (including new idea management, product development, launch innovation to market and continuous improvement). A.T. Kearney is holistic in that point that it covers all aspects of innovation management and inter-connects all of its elements. It is clearly focused on value creating and requires performance measures to monitor contribution to organization's value:

1 Innovation strategy – includes whether the organization has or has not innovation strategy, i.e. clear vision, its employees and other stakeholders understanding and communication. This first area of the A.T. Kearney House of Innovation is an edge to define the outcomes and goals to be achieved.
2 Innovation organization and culture – includes soft factors, which significantly contributes to innovation performance. Precondition is openness, communication, information sharing and elimination of barriers.
3 Innovation life cycle management – having good ideas is not enough. in relation to the outcomes is necessary to know and have control over the entirely innovation life cycle, which includes:
    a. Idea funnel management – i.e. systematic collection of new ideas and incentives (both internally and through partners), their classification, evaluation and selection. New innovation projects are executed on their base.
    b. Product and process development – phase in which new ideas are transforming into R&D projects utilizing enabling factors running in particular time period.
    c. Launch and continuous improving – achieved invention outputs should be placed into the market so that is innovation. This addresses the third phase of innovation life cycle management. It includes time-to-market and time-to-profit. Within time-to-market commercialization absorbs R&D costs (time to break-even point). Time-to-profit presents life cycle within it innovation produce a profit.
4 Enabling factors – i.e. human resource management, knowledge management, information share, controlling, project and process management, IT technologies and management etc. All these factors represent driving forces. Top companies have to support appropriate and sufficient quality human resources that can communicate with each other and manage and share information and knowledge. For project implementation, acquisition and utilization of financial and other resources, they must be able to manage projects and have established a controlling system. It could provide effective feedback. Everything has to be supported by information-technology background.
5 Innovation outcomes – are what innovation management and its performance makes visible. Outcomes represent quality, quantity and timeliness of innovation. Outcomes measures capture the way how innovation business model outputs were transferred into a company value.

A.T. Kearney in its study [2] identified key top critical success factors for each dimension of its House of Innovation.

1 Innovation strategy:
    a. Create clear vision for innovation aligned with business strategy,
    b. Spread and communicate it to all hierarchies,
    c. Analyse all environmental trends (e.g. customers, competitors, technologies),
    d. Measure achievements against strategic objectives.
2 Innovation organization and culture:
    a. Provide time, space and money to exploit new ideas,
    b. Support and active involvement from top management,
    c. Built excitement about innovation,
    d. Accept failures and mistakes,
    e. Involve internal and external resources.
3 Innovation life-cycle management:
    a. Create systematic idea generation and innovation processes,

b. Turn lots of new ideas into innovation projects,
c. Built continuous improvement processes,
d. Accelerate time-to-market and time-to-profit.

4 Innovation enablers:
a. Establish incentive systems to support innovation management activities,
b. Ensure sound project management and control of resources,
c. Ensure systematic management of intellectual property resources,
d. Apply appropriate IT tools for innovation management tasks,
e. Integrate lessons learned and knowledge sharing.

The diagnostic designs applied in current practices are not fully balanced and hardly consistent with respect to the indicators applied to measure the performance in each dimension of the A.T. Kearney House of Innovation. In dimensions such as strategy, launch and enabling factors, the analysis revealed room for improvement in the indicators chosen to measure performance in these dimensions. Although these dimensions are rated as highly relevant by the self-assessment tool providers, an analysis of the different self-assessment tools revealed that there is no consistent and comparable measurement approach available. According to the self-assessment tool providers, it is rather difficult to take into account different types of innovations – those ranging from incremental to radical innovations and technological to business model innovations. Existing assessment tools contain only a limited number of indicators that address business model or organizational innovation.
Apparently, there is no standardized framework for comparing the results of innovation management. Thus, with existing practices it is difficult to generate tangible benchmarks of the innovation management performance of SMEs. To set a new standard of innovation management assessment, the following objectives must be achieved:

- Address all dimensions of innovation management in the diagnostic design,
- Close the gaps, specifically in terms of strategy, launch and knowledge management,
- Set a new standard of diagnostic design for excellence in innovation management,
- Integrate the various types of innovation such as organizational and business model that have not yet been fully conceptualized.

### 3.3 Discussion towards a profound innovation management assessment – measuring the excellence of innovation management and capturing success and business impact

Currently, there is no way to assess both the processes and capabilities of innovation management as well as the business impact. Traditional performance measurement systems, those that focus on quantitative outputs, do not measure the quality of innovation management processes to ensure the successful generation and transformation of ideas and value capture. Here, only input and output measures of innovation management are addressed. Still, there are tools to obtain a better understanding of innovation performance by looking at innovation capability and the processes involved in developing and exploiting innovation. In total, only around 10% to 20% of the indicators in holistic approaches are output indicators that address innovation management success and business impact. In fact, quantitative measures play a minor role.
Indeed, investigating input and output measures only provides a first insight on the current innovation management performance. However, in many cases, traditional output measures are related to R&D activities that do not fully capture the overall output of innovation management processes. Moreover, a purely output-oriented approach is not sufficient to identify the root causes of weaknesses. Therefore, it is crucial not only to investigate the current innovation success but also the processes with which the SME develops and exploits these innovations.
In current assessments of innovation management performance, the business impact of innovation management is not fully captured. Apparently, there is no tool available that fully integrates both innovation management success measures and indicators to analyse root causes of either strong or poor performance. This tool, if available, would provide SMEs and other stakeholder groups with insight into "what" the weaknesses are, "why" they perform strongly or poorly, and which levers need to be improved.
To develop a best practice in innovation management self-assessment, both output-related indicators and root-cause indicators must be combined.[1]

## 4 Conclusions

The article summarizes the issue of management of innovation activities and findings of empirical research. It strives to show the importance of innovation activities linked to the overall effectiveness and competitiveness of a company as well as prosperity in the presently fading economic crisis and still strong competitive environment. As the old saying goes, “If you can’t measure it, you can’t manage it.” This is especially true for innovation where there is a pressing need to bring focus clarity and discipline to a fundamentally creative process. The holistic approach A.T. Kearney House of Innovation could be used by SME as an innovation activities management and assessment model. Assessment systems are essential for innovation management success. Assessment systems are both fundamental and critical to success with innovation. It is not enough to simply pick several areas, use whatever you happen to measure and expect that to give you the information you need to manage innovation. Group of assessment holistic tools based on A.T. Kearney House of Innovation provides a systematic and quality-oriented view on innovation management.

## Literature:

1. Engel, K., Diedrichs, E., Brunswicker, S.: *Tangible Results from IMP3rove - Insights on Innovation Management in Europe.* Europe INNOVA paper No. 10, Duesseldorf: A.T. Kearney, 2008, 124 s. ISBN 978-92-79-09326-5.
2. Diedrichs, E., Engel, K., Wagner, K.: *European Innovation Management Landscape.* Europe INNOVA paper No. 2, Augsburg: Druckerei, 2006, 76 s.
3. Engel, K., Wagner, K., Hubbert, J.: *Innovation Management Assessment.* Duesseldorf: A.T. Kearney, 2006, 4 s.
4. *European Best Innovators – The New Frontiers*. Duesseldorf: A.T. Kearney, 2005, 16 s.
5. Kadeřábková, A.: *Ročenka konkurenceschopnosti České republiky 2006-2007*. Praha: Linde, 2007, 562 s. ISBN 80-86131-64-5.
6. Košturiak, J., Cháľ, J.: *Inovace: Vaše konkurenční výhoda.* 1. vydání. Brno: Computer press, 2008, 164 s. ISBN 978-80-251-1929-7.
7. *Potřeba průmyslu je větší než kdy jindy* [on-line]. 2010 [citováno 2010-11-10]. Dostupný z: <http://www.finance.cz/zpravy/finance/286231-potreba-prumyslu-je-vetsi-nez-kdy-jindy-/>

**Primary Paper Section:** A

**Secondary Paper Section:** AE

[1] For further discussion see Europe INNOVA paper No. 2