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To cite this version:

Peter Kubičko, Lenka Landryová, Roman Mihal, Iveta Zolotová. Measurement, Classification and Evaluation of the Innovation Process and the Identification of Indicators in Relation to the Performance Assessment of Company's Innovation Zones. 19th Advances in Production Management Systems (APMS), Sep 2012, Rhodes, Greece. pp.661-668, 10.1007/978-3-642-40352-1_83 . hal-01472333

HAL Id: hal-01472333

https://inria.hal.science/hal-01472333v1

Submitted on 20 Feb 2017

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Measurement, classification and evaluation of the innovation process and the identification of indicators in relation to the performance assessment of company's innovation zones

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Abstract. Continuous renewal of products, services, processes and business collaboration increases the company chances to survival. This article draws attention to the features of innovation zone, which result in innovative products, services, or processes. Our research focuses on the innovation of processes included in innovation zone. In simpler terms, we are engaged in creating a dynamic environment using processes with abilities of permanent improvement of innovation process.

Keywords: innovation process, measurement, classification and evaluation of the innovation process, innovation zone, performance indicators.

1 Introduction

Measurement and evaluation in the company's (enterprise) innovation zone have an irreplaceable role. In this article we approach the real example of the need for measuring and assessing various levels of innovation zones. As regards the ideas it is often considered too difficult a task as many ideas and suggestions can only be part of an innovation or cannot be directly converted to monetary value. The actual value can be measured by the end customer only, who is the best evaluator of outputs. However, measurement, evaluation and classification were not applied only to the ideas themselves, but our goal is to find the measurable areas of an innovation zone and possible ways of their evaluation.

adfa, p. 1, 2011.
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2 Evaluation of innovation outputs

The metrics (measurable indicators) that we have identified so far in terms of future production values by estimate only are: the number of outputs of the innovation project, the usefulness in implementation projects (repeatability using one of the outputs), and the number of identified outputs as business opportunities. The number of contracts (signed contracts) transformed from the business opportunities created by innovation outputs is yet the indicator of fair value defined by the customer.

The indicator of a number of outputs of the innovation project indicates only the number regardless of the quality of outputs demonstrating the insufficiency of this indicator. It is therefore advisable to use another indicator that either captures the interest of the future use of some outputs, or measures the actual use thereof. Of course, such a measurement in the first instance requires a questionnaire form of capturing the interest of the individual outputs that provides only an indicative view. If the approach to measure is to capture the used outputs only, so we might get a high accuracy of the indicator, but over time we get information quite late, usually after completion of the project. Therefore, use of another combined indicator (interest survey results, the number of results used) seems to be optimal for the evaluation of ideas. A specific indicator in terms of commercial exploitation of the outputs is the identifier of business opportunities, which, like the previous indicator, has a dual form:

1. identified business opportunity,
2. implemented business opportunity.

In addition to measuring the value of innovation ideas it is important to apply the measurement of actual innovation processes and the procedural steps thereof. The process system measurement and process control are natural in the innovation zone because of the dynamically adapting needs of production and the market.

3 Measurement and evaluation of the innovation process

We describe the process evaluation by assessing the individual process steps and the possibilities of their improvement. Each step has its own difficulty: its evaluation in terms of automated support, the necessity of investing human effort and possible improvements. It is also necessary to capture weaknesses and existence of defects. To visualize the evaluation process, we chose a sub-process of innovation idea processing. The following assessment is based on the knowledge of the authors of the article, and accordingly we defined the following parameters (KPI-Key Performance Indicators [5]):

The Level of Automation (LOA) indicates the level of automated support of the specified step. The aim is to use automated functions for the specified step that focus on usefulness, speed, accuracy and flexibility compared to manual processing.

The Investment of Human Efforts (IHE) indicates the level of human efforts in the sense that the smaller the effort, the higher the value of the level. Automation does not always reduce the investment of efforts.

The Linking with Business Process (LBP) is a natural indication of the specific step being incorporated into the normal business process.
The Existence of Deficiency (EOD) is an indication of redundancy or inefficiency in the operations step or the existence of apparent opportunities for improvement, which have not been applied yet.
The Added Value (AV) indicates visible or measurable benefits. Under the added value we understand the benefits that are in line with the company strategy and can either improve the quality of outputs, or bring a reduction of direct costs while the quality remains unchanged, or result in reduced labor.

The indicators can take only three values 0, 1, and 2 representing the minimum, medium, or maximum value of the corresponding indicator.

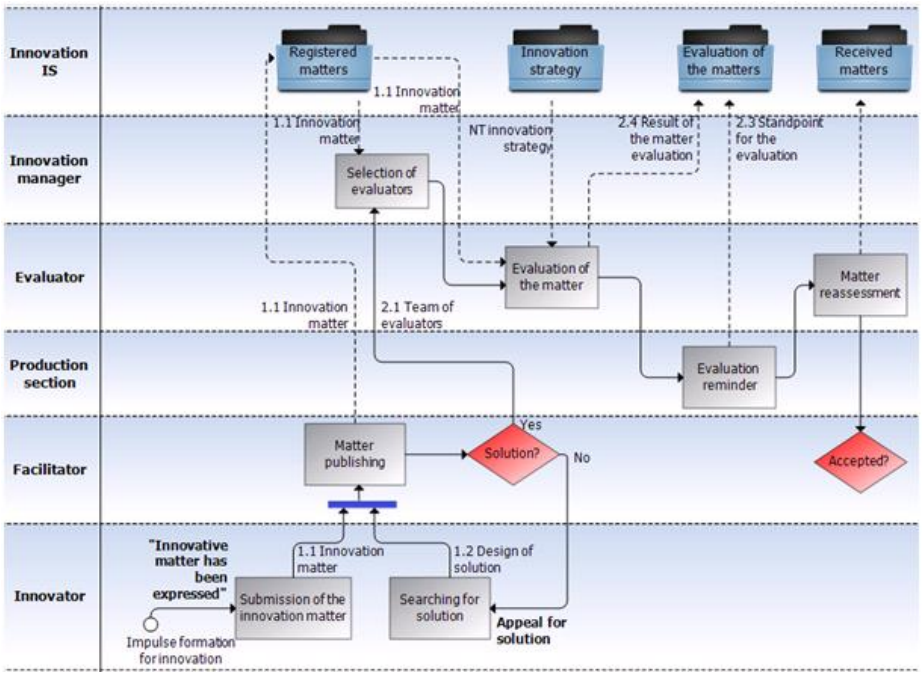

Fig. 1. Sub-process of innovation idea processing [2]

3.1 Submission of the innovation matter

The step of submitting ideas by innovators is easily accessible from the main site of the innovation zone, which is quite comfortable for the promoter of the subject matter when he launches the main site innovation zone. During the normal work day, however, when the user is in one of the many portal sites it is no longer so easy to access. The submission of ideas is available for unregistered users as well as for registered

ones. This step could be gradually integrated into the other steps such as the project portal sites.

3.2 Matter publishing

Publishing ideas according to internal rules is trying to capture public comments or getting people interested in sharing the implementation project. Publishing ideas is implemented in an automated way, but the completeness is supervised by the facilitator who before selecting the evaluation team ensures the integrity of the published ideas.

In absence of a description of the solution that may not yet be in possession of the innovator, it also helps the innovator to search for a solution. The communication between the innovator and facilitator is very important and in the current solution this communication is not controlled, but it is left onto the personal activity of the participating actors. Registration of the subject matter is implicitly secured by the portal features and inherently when inserting the idea by the innovator and releasing the same for publication by the facilitator.

3.3 Selections of evaluators

Selection of evaluators of the subject matter is the role of innovation manager. However, the evaluators conduct the evaluation on a voluntary basis within their capabilities and workload. Time synchronization and securing the independence of the evaluation is yet in a position of ethical values. In this step, it is possible to increase the support for the innovation manager in organizing evaluators and acquiring their binding commitment that they are taking on the role of the evaluator. The system also takes into account the motivating factor for the evaluators. However, it does not depend only on the subjective decisions of the innovation manager and the way he applies it. Our knowledge can be summarized into allegations that a motivating factor should be defined with easily enforceable rules, without the unnecessary uncertainty of evaluators about the use or non-use of a motivating factor by the innovation managers.

3.4 Evaluation of the matter

Soon after the first evaluations of ideas it was necessary to improve the evaluation, either compared with a particular goal, or with a specific business issue. Today, the evaluation is in the hands of three randomly selected evaluators that in their perception of reality take into account the potential benefits of the evaluated ideas from different perspectives. For example, the idea that has a society-wide importance need not have business importance for the company. For that reason for the evaluation of ideas a regulation was created that is to guide the evaluators in order to evaluate the prescribed three perspectives:

Originality: We are looking for innovative IT solutions (knowledge intensive collaboration solutions: business process repositories, process simulations, large-scale pro-

ject collaboration systems, scenario-based learning, intelligent helpdesk solutions, etc.). Is your idea unique?
Feasibility: We are looking for solutions that can enjoy success in the marketplace or in a company. Is your idea cost-effective, or can it be made so?
Impact: If successfully realized, will your idea help turn our current IT challenge into an opportunity?

IDEA evaluation reports

ID	Evaluation Conclusion	Mark 1	Mark 2	Mark 3	Total Score
17	I recommend to test this service with low costs at the beginning.	4,0	3,0	3,0	10,0
19	Recommend simple and cheap implementation	4,0	3,0	3,0	10,0
40	I recommend you implement idea with inexpensive solution for processing voice calls driven by process solution.	4,0	3,0	4,0	11,0

Fig. 2. Webpart idea evaluation report from idea evaluators [7].

Evaluation forms (templates) are indefinitely available for evaluators. It happens that two evaluators comply with the deadline while the third one delays his or her assessment resulting in a drop in trust from the innovator which is another drawback of this step. All evaluations are automatically recorded and supported by the portal of the innovation zone.

3.5 Evaluation reminder

Reminding the evaluation of the output section allows to create feedback of the production teams and to provide information that is important not only for the implementation phase, but also for the enrichment of information about the production environment and activation of further impulses for new ideas. The output section prepares its viewpoint on the evaluation. This step is purely of an organizational nature and we consider ways to improve this step by the increased collaboration support of the production section that is dedicated to this activity so as to not disturb other planned activities with higher priority.

3.6 Matter reassessment

In conclusion, the final step in the assessment of the previous evaluations and the result is either a rejection or acceptance of the viewpoint, which allows thereafter going into the preparation of the implementation phase of the project.

3.7 Searching for solution

Finding solutions is a step that is necessary if exists an idea which doesn't contain design of technical solution yet. It is used when for the idea there is a need to find appropriate solution and the cooperation with other applicants is welcome. This step has not automated support, which is difficult to establish in this creative activity. It is still necessary to make some effort to find a solution.

4 Demonstration of process measurement

The following example contains application of defined indicators on the word evaluation of the particular process steps described in the previous chapter. In the table (Table 1) and at the Figure (Fig. 3), there are shown two interpretations of the KPI values for all process steps, matrix and graphical interpretation. Such measurement provides a more realistic vision of the process and options for the optimization and improvement.

		Process steps (PS)						
		PS1	PS2	PS3	PS4	PS5	PS6	PS7
		Submission of the innovation matter	Matter publishing	Selection of evaluators	Evaluation of the matter	Evaluation reminder	Matter reassessment	Searching for solution
KPI	LOA	2	1	1	1	2	1	0
	IHE	1	1	0	1	1	0	0
	LBP	1	1	1	1	0	1	1
	EOD	1	0	1	0	1	1	1
	AV	2	2	1	2	1	2	2

Table 1. Measurement matrix of the sub-process of innovation idea processing

5 Conclusion

By the means of the article we demonstrate measurability of general processes of innovation zone, which may be applicable to different types of businesses and organizations dealing with generating innovative ideas in a controllable way and to maximize the added value of its future business. We intend to apply the action of measurement to all of the processes of innovation zone. We consider as important to simulate

different business environments in the application verification in order to demonstrate a wide usability of general definition of innovation zone processes (Figure 4) and potential differences related to measurements. We expect that measured values will have different significance (different weight) for different environments, what will be the subject of further research.

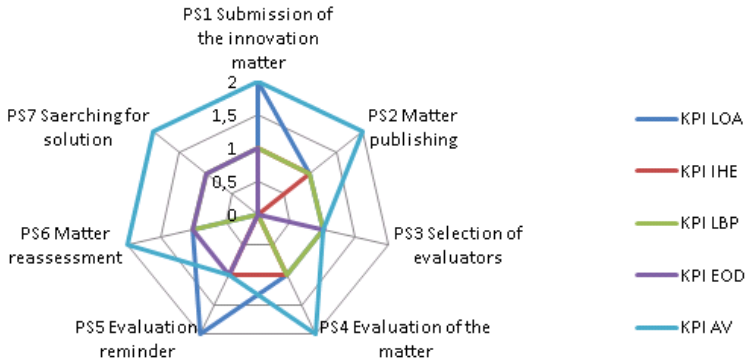

Fig. 3. Chart measurements of process steps

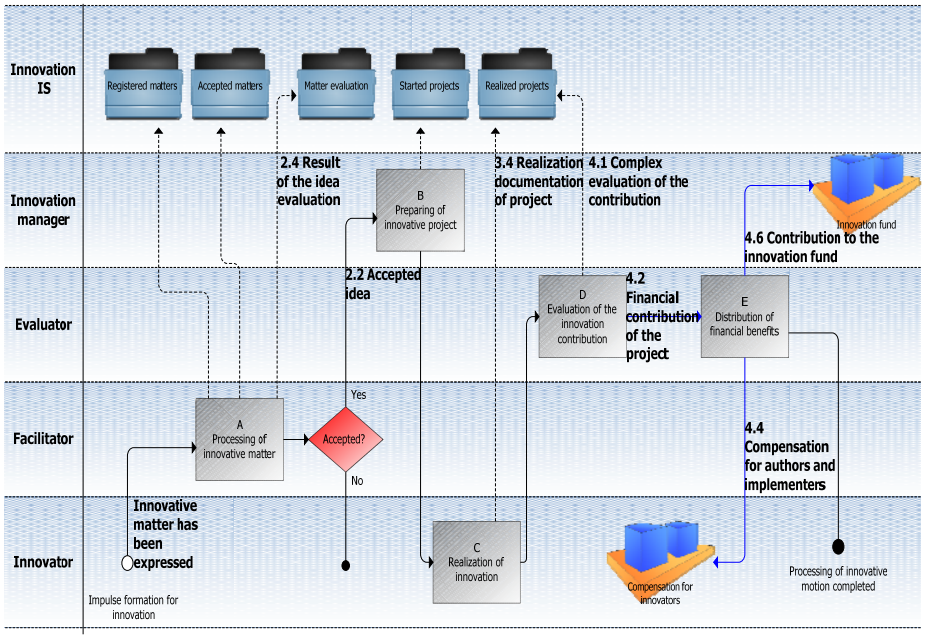

Fig. 4. Processes of the innovation zone

Acknowledgments

This work was supported by grant KEGA No. 021TUKE-4/2012 (100%). The team also thanks Novitech Company for a willingness, which allowed us to examine conditions for implementation of innovation zones in the real business environment, especially thank the President and Chairman of the Board (Chairman of the Board of Directors), Dr. Attila Toth, for his inspiring advice and transfer of experience to us.

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