

VALUE AND INNOVATION MANAGEMENT AT AN AIR TRANSPORT CONSULTING COMPANY

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Abstract

Our main goal was to show the value and innovation management. Why is the value and innovation management for companies important? What is the different between value and innovation management? The Value Methodology is a systematic and structured approach for improving projects, products, and processes. It helps achieve an optimum balance between function, performance, quality, safety, and cost. The proper balance results in the maximum value for the project.

The methodology of the IMP³rove innovation management was created as a result of a research and development project launched which started in 2006. The IMP³rove is a registered, official, trademark by the European Commission in all Member States of EU. The methodology involves all aspects of innovation management: innovation strategy, innovation organization and culture, innovation management processes, implementation conditions for innovation management and the financial indicators of innovation management performance measures.

We present the importance of value and innovation management performance measures through actual case study. The analyzed company is a leading Hungarian SME in the participation of aeronautics and air transport related research projects. The company as being a member of different consortiums accumulated a strong project participation experience working together with numerous outstanding research institutes, universities, airports, airlines and innovative companies, few examples are AENA, Airbus, DFS, DLR, INECO, NATS, NLR, SELEX, THALES, and UCL.

The value management and IMP³rove significantly helps companies to recognize hidden reserves for competitiveness and sustainable growth in performance, efficiency, profitability. The companies in the competitive environment can generate significant advantages by using IMP³rove to identify breakthrough points in development, management, innovation and knowledge capital.

Introduction

Nowadays, in a global economy characterized by growing competition, even market leaders struggle to achieve target growth rates through innovation. As cost pressures increase, companies have begun spending less on incremental innovation and allocating more of their declining research and development budgets to breakthrough innovation. However, breakthrough innovation carries huge risks, so companies require a unique set of capabilities to manage these risks, reduce product costs and drive growth. (Moebius – Staack, 2015) (Jay – Bowen, 2015)

The views of economists and experts on the factors urging or hindering the growth of SMEs often do not match. According to Gibrat (1931), states that the rate of growth is not dependent on the size of a company (Sutton, 1997). Barney et al. (2001) consider the role of the available resources, Perren (1999) the owner's motivation for growth, expertise, the available resources and the demand as decisive, while Ghoshal et al. (2002) argue for the importance of the competences of the entrepreneurs and the corporate organization. Porter (1980) emphasizes the importance of competition within the industry, the suppliers and customers, the new entrants, and substitute products. It is worth highlighting Drucker's (1985) comment which says that the reason for the rapid development of US SMEs is that as a result of the accelerating „technological” progress flexibility has become a key factor in corporate competitiveness, and thus the competitive strength of small companies, which are more flexible than bigger ones, has improved.

Researchers, product and technology developers and managers work together with previously inconceivable efficiency to explore and implement new product ideas in the centres of development. The nuclear and the info-communications industry, biotechnology, and management practices offer newer and

newer market opportunities to every company. Successful innovation is used not only by the most advanced countries or Finland and Ireland and the Four Asian Tigers, but also by China and India. However, in recent centuries, the opportunities offered by innovation explored by R&D have mainly been exploited by large companies. In recent decades, however, this knowledge offered and even today the identification of such opportunities for innovation offers the greatest chances of success to SMEs. (Pakucs and Papanek, 2009) (Lados and Kovacs, 2014)

Innovation can occur in several ways, such as learning by doing, imitation and by innovative use of existing knowledge. (Kenyeres et al, 2016) Yet the most promising approach is research. This is why research and development play such an unquestionably great role in terms of long-term growth. (Baranyi et al, 2016) According to Eurostat (2015) almost half of all enterprises in the EU-28 reported innovation activity (48.9 %) during the period 2010-12. Compared with the period 2008-10, the share of innovative enterprises decreased by 3.9 percentage points. Among the EU Member States, the highest shares of innovative enterprises during the period 2010–12 were observed in Germany (66.9 % of all enterprises), and the lowest share was recorded in Romania (20.7%).

A primary consideration in the selection of the countries involved in the study was to present the situation in Europe and compare it with US data. As the diagram shows, Finland (3.5%) and Sweden (3.3%) take the lead in terms of R&D spending. They devote the largest share of their GDP to research and development. In this respect, they surpass the United States of America, where the value under examination is 2.7%. This is much more than the average of the 28 EU Member States, which spent only 1.9% on R&D.

Value Management

Value management (VM) is a proactive, creative, systematic and team-oriented methodology that maximizes the functional value of a project by managing its development from concept to occupancy according to the value requirement of the client. (Gui et al, 2006)

It evolved from the traditional paradigm of value analysis (VA) and value engineering (VE). The evolution can be traced from typical definitions provided by Miles (1961), Zimmerman and Hart (1982) and Kelly and Male (1993). Whilst these definitions provide the differences between VM, VE and VA, it is not correct to perceive them as three totally different processes. VM in construction is increasingly being seen as the term to describe the total process of enhancing value of a project for the client from concept to operation. VE and VA can be viewed as special cases of the generic discipline of VM, whose focus is on improving value in the design and construction stages of a project (Male et al., 1998).

Value management is taken as an umbrella term embracing the three processes, namely: value planning, value engineering and value reviewing. (Cooper - Potts K, 2009)

This investigation concentrates on value engineering which is defined as 'A systematic approach to delivering the required functions at lowest cost without detriment to quality, performance and reliability' (Connaughton – Green, 1996).

Through the function definition, function rearrangement and function evaluation, the functions of innovation management and the cost of each function are confirmed, and then the application of value engineering improve the efficiency of enterprise' s innovation management. Value engineering applied to innovation management, its emphasis is on the functional analysis of innovation management. (Zhong - Zhang, 2009)

According to Thiry (2004) the value method retains the three basic concepts of function, cross-functional teams and a structured process. Its use has spread to, inter alia, strategic planning, process re-engineering, organizational change and concurrent engineering (Thiry, 2004). Different study styles have been put forward as suitable for strategic studies, in contrast to other styles for organization change or various project specific outcomes (Kelly et al., 2004). Possibilities continue to be explored, more recently with the development of balanced scorecard and strategy maps (Davies and Davies, 2011). In essence, new applications of value management continue to emerge – making it a powerful tool for entrepreneurial development. (Jay – Bowen, 2015)

Innovation Management

For companies, innovation – from a practical point of view – is the sum of all the efforts and results that were devoted to the development of new products, services, business models, processes and organizational frameworks with a view to creating real added value that is recognized by their clients and cooperative partners. Consequently, innovation is not equal to its development, and its value-generating

nature must be confirmed by the market as well. An essential condition for reaching the results validated by the market is the management of innovation.

The topic of innovation has broad international literature, but innovation management as a complex system of management and quality assurance has rarely been the focus of scientific studies. The most obvious reason for this is that these processes (organizing the management of innovation into a complex system) began in business life only in the last decade and may become the subject of scientific studies in the next period.

In Europe, the systematization of the wide-ranging sub-areas of innovation management and standardization itself began with the IMP³rove project which won the EUROPE INNOVA grand prize in 2008. The program supported by the decision-makers in Brussels was designed to create an innovation management tool that can lead to measurable business impact for the European SME sector. Between 2006-2009, the company group led by the German consulting firm, AT Kearney, worked out a business model that included not only a methodology and a tool but also the training, research and partner mediation elements of the area. It started to spread in EU Member States in the past 6 years.

The CEN/TS 16555 series consists of the following parts with the general title Innovation management:

- Part 1: Innovation Management System;
- Part 2: Strategic intelligence management;
- Part 3: Innovation thinking;
- Part 4: Intellectual property management;
- Part 5: Collaboration management;
- Part 6: Creativity management;
- Part 7: Innovation management assessment.

Without the methods and tools it is very difficult to provide effective assistance to the SME sector. This is why the standardization of innovation management and the spreading of IMP³rove among the SMEs of EU countries is an important milestone in the field of innovation.

Presentation of the CEN/TS 16555-1 standard

Title of the standard: „Innovation Management System” Date of publication: 1 October 2013. This is the first part of a seven-part series of standards.

A defined goal of the standard is to „to guide organizations to introduce, develop, and maintain a framework for systematic innovation management practices, an Innovation Management System (IMS). Establishing such a management system would allow organizations to become more innovative and to achieve more success with their product, service, process, organizational design and business model innovations. This would foster organisation's results, value and competitiveness.”

The introduction of the standard enumerates the areas where its application can offer tangible advantages for a particular business entity:

- it enhances growth from innovations (revenues, profit);
- it brings fresh, new thinking and new values to the organisation;
- it creates value through a better understanding of market demand and opportunities;
- “it helps to identify and manage risks”;
- “it helps to exploit the collective creativity and knowledge of the organisation”;
- to capture value from joint innovation with others;
- it promotes employee involvement in innovation activities; strengthens organizational cohesion.

The innovation management system (that is neutral in terms of industry and size) covered by the standard comprises the following areas:

1. organizational context;
2. leadership skills in the field of innovation;
3. planning of innovation;
4. factors promoting/supporting innovation;
5. the information management process;
6. performance assessment of the innovation management system (hereinafter referred to as IMS);
7. the improvement of IMS;
8. innovation management techniques.

The key elements of the specifications relating to the context of the organization

In terms of the external environment, the standard requires the monitoring and analysis of market, technical/technological and social factors. In addition, the organization must identify the parties involved in IMS (in particular: customers/users), and identify their needs, expectations and requirements (through their involvement).

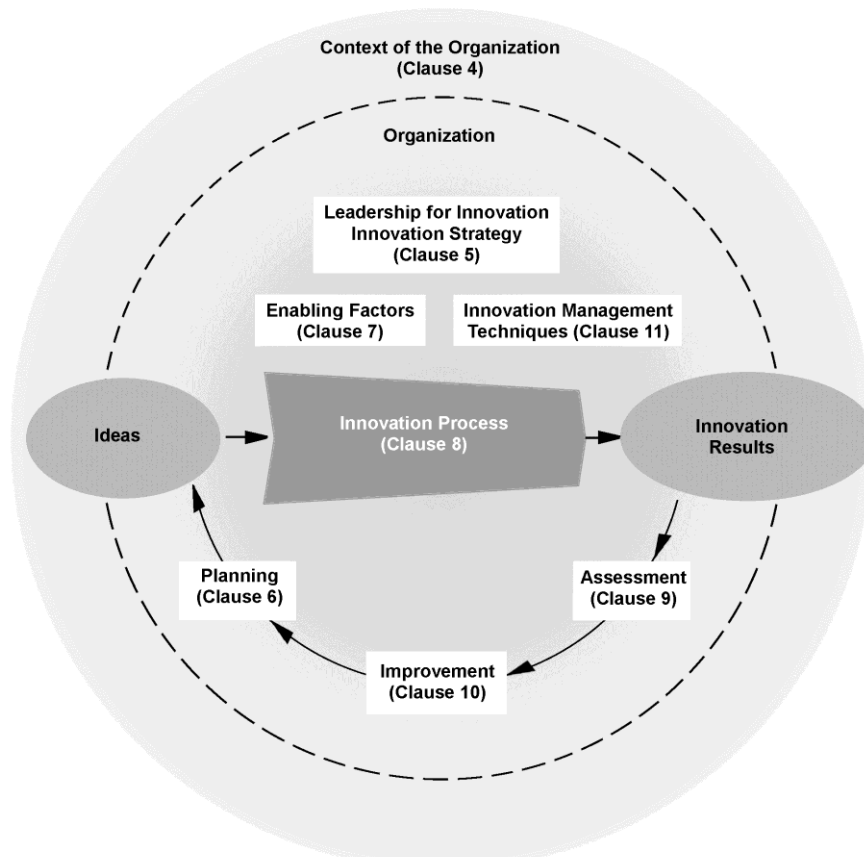


Figure 1. The key elements covered by the Innovation Management System
Source: CEN/TS 16555-1 standard (2013)

Innovation management techniques

- General considerations: defining the factors regularly arising in the development of the IMS.
- Management of the strategic intelligence process: “The strategic intelligence process is based on the collection, processing, analysis and production of information and knowledge that notably contribute to the different decision-making stages of innovation management: decisions concerning projects to be launched, project drafting, project feasibility, product development and product launch, results to be protected, freedom to use, and regulatory and ethical constraints, all within the framework of the wider strategic roadmaps of the organisation.”
- Innovation thinking: formulating the expectations regarding the planning techniques of innovation.
- Intellectual property management: defining the major areas of management.
- “Collaboration management”: formulation of the expectations regarding various innovation collaborations.
- “Creativity Management”: defining the expectations regarding the factors promoting the unleashing of creativity.

The application of the CEN/TS 16555 standard in practice - IMP³rove

In 2006, a three-year research and development project was launched at the initiative of the European Commission – (EC) (2014) in the field of innovation management. As a result of the project, IMP³rove® (IMProving Innovation Management Performance with sustainable IMPact) was created. IMP³rove is an ensemble of objective measurement techniques and services based on the “House of Innovation”, see Figure 4.) model developed by AT Kearney (the German consulting firm that led the project funded by the EC). The methodology includes all the factors of innovation management: the financial indexes meant to measure the innovation strategy, the innovation organization and culture, the innovation management processes, the implementation criteria of innovation management and the performance of innovation management.

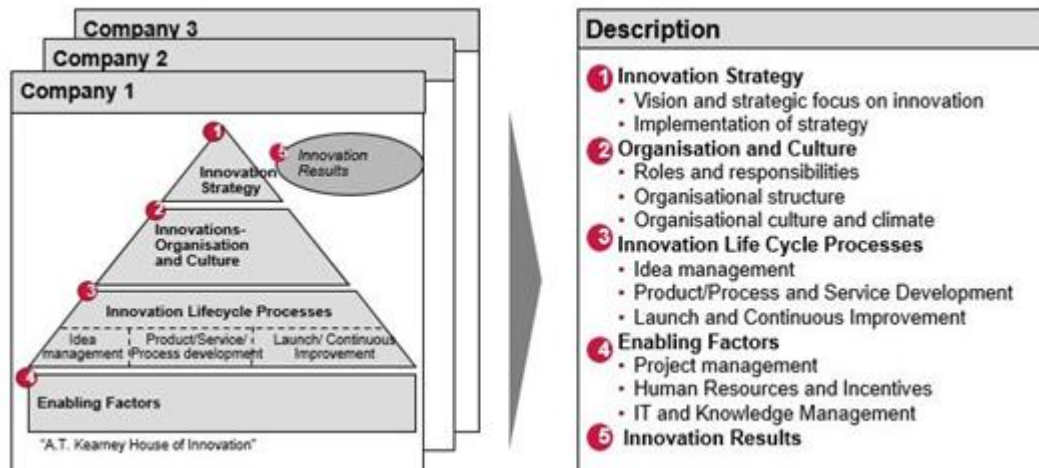


Figure 2. In the IMP³rove Assessment, Innovation Management is evaluated in five performance dimensions

Source: www.improve-innovation.eu (2016)

When making an “IMP³rove Assessment” forming the basis of the methodology we get a picture of the innovation of the enterprise under examination by analysing the above factors. Making the assessment offers guidance to the sustainability of businesses and to increasing their competitiveness.

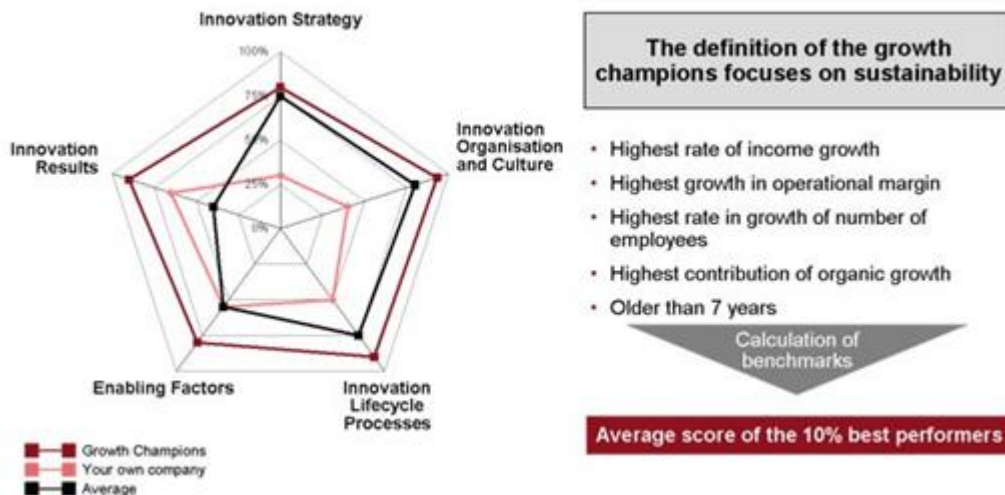


Figure 3. The results of the benchmarking follow a key principle – comparison with the Growth Champions

Source: www.improve-innovation.eu (2016)

The benchmarking report made on the basis of the assessment compares the specific companies with the “Growth Champions” (companies producing the largest growth in the two financial years preceding the survey) and the average of the actors in the previous surveys.

IMP3rove at present

In June 2016, the IMP3rove benchmarking database contained the data of more than 5,600 businesses in the following sectoral and operational breakdown.

Table 1: Innovation management benchmarking database

Industries	Small enterprises	Medium-sized enterprises	Large enterprises	Grand total
Manufacturing	1,179	1,406	380	2,965
Information and Communication	544	370	39	953
Professional, Scientific, Technical Activities	486	178	28	692
Other industries	482	387	150	1,019
Grand total	2,691	2,341	597	5,629

Source: www.improve-innovation.eu (2016)

Case study

All the tables and figures contained in this chapter are taken from the IMP³rove Assessment Evaluation Report made for Slot Consulting in August 2016.

Slot Consulting is a leading Hungarian SME in the participation of aeronautics and air transport related research projects. Slot Consulting as being a member of different consortiums accumulated a strong project participation experience working together with numerous outstanding research institutes, universities, airports, airlines and innovative companies, few examples are AENA, Airbus, DFS, DLR, INECO, NATS, NLR, SELEX, THALES, and UCL.

Apart from aeronautical related R&D activities, Slot Consulting is involved in ICT aspects of different projects as well. The level and area of involvement could be different however due to existing ICT competencies and flexibility Slot Consulting tackles all the challenges successfully. Besides working on EU funded international projects Slot Consulting is frequently engaged in work related to the needs of local ANSP, aeronautic related organisations aeronautical authorities. The company also an active player in flight operations, it provides handling arrangements to aircraft operating to Budapest Airport.

The full evaluation report is based on the benchmarking class consisting of 281 companies with the following profile:

- Industry group: Own industry – „Professional, Scientific and Technical Activities” group was given for Slot Consulting Ltd („company”)
- Size class: Own size – They have 10 employees.
- Age class: All – The company is 15 years old.
- Country: All

The company had an overall score of 48% on innovation management performance. Below, the score is compared with the Growth Champions and the average for your benchmarking class.



IMP³rove 2016 - Innovation Management Performance - Overall

Figure 4. Overall performance

The following dimensions have been evaluated:

- Innovation Strategy that gives your firm direction and focuses all innovation management activities for maximum impact e.g. ensuring that the most promising innovation projects are pursued.

- Innovation Organisation and Culture, covering the gearing of organisation and innovation networks towards innovation management, and the embedding of innovation management in the firm's culture.
- Innovation Life Cycle Processes, covering the integration and management of innovation life cycle processes including idea management, product/service and process development, launch, continuous improvement and the discontinuation of e.g. your products and services.
- Enabling Factors, involving a variety of factors such as IT, project management, intellectual property rights or human resource management that can be leveraged for increasing the business impact of innovation management.
- Innovation Results dealing with the output of innovation management activities and the impact on indicators of business success, e.g. income from sales and operational profit.



IMP3rove 2016 - Innovation Management Performance Profile - Overall

Figure 5. Performance in each dimension of the “House of Innovation”

Summary

Nowadays, one of the most important questions is what the driver of economic growth can be in the future to come. On the basis of the analysis of economic theories and long-term time series we can conclude that the most important factor promoting an expansion of production and the rise of the living standard is the growth of productivity, which can be achieved through innovation. 6 years ago, the IMP3rove methodology began to spread in the European Union. At present, large corporations tend to use the CEN/TS 16555 standard in practice, because the accelerating development of the knowledge economy can offer surprising situations to prominent representatives of certain sectors from time to time. We have seen many examples recently that businesses making innovation consequently a part of their everyday lives, even if starting out as start-ups, can reshape centuries-old industries, or companies temporarily neglecting the area of innovation or making bad decisions on innovation area of innovation can fall into a rapidly deteriorating position.

The survey itself clearly pointed out the shortcomings in the field of innovation and value management which characterize the enterprise, but this is just the starting point in the area of development of innovation management functioning on a standardised basis.

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