

Project Management as an instrument to support innovation for country development – Macedonia case study

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Abstract— East European countries are all in the group of modest innovators by the Global Entrepreneurship Monitor and they all have slight improvements in the recent years. They all have some government programmes to support innovation and entrepreneurship. Project management was used as an instrument with some features that can help bust new innovation product development and with that to help the economies to become Innovation-driven Economies. Project management with some features helps the innovation development of products, but for some features it is limiting the development. Recommendations have been given for support of activities in Macedonia so that the innovation of new products and services can be stimulated in the upcoming period.

Index Terms — Development, Innovation, Project Management, Growth, Resources.

1 INTRODUCTION

Project management is highly incorporated in the base of normal functioning for many innovative companies. This discipline is practiced by trained professionals in organisations that have project oriented work. Those companies have foreseen the importance of managing projects timely in budget and in scope so that they can stay in business. Nonetheless still many companies in Macedonia have incomplete understanding of the importance and are limiting the practicing of project management. Especially in innovating new products and services. This is not helping to the struggling companies in the Macedonian economy that are trying to deliver product and service in efficiently and effectively manner to their customers. This is vital to the companies for designing, producing and delivering to the markets. And this is why companies must recognise project management as a critical tool for strategic functioning and innovation development of product and services. In addition to this, selecting project that have best chance for success and move company forward is crucial. The right selection of innovative projects can help company to be attractive and get more profit, maximum shareholder reward and compete in the global markets.

In this research we analyse the position of Eastern European countries regarding the innovation and how project management tools can help bust it.

2 SITUATION ANALYSES

The main that has been risen before in another research was “why entrepreneurship and innovation stimulate the growth of the countries?” [7, 8]. There it was stated that this is because “they create new jobs, they stimulate the market competition and from all of that they increase market output, hence they stimulate

country's economy” [7, 8]. Previously it was deliberated about the importance of technology, government support and education of human resources for innovation and entrepreneurship and with that to stimulate the economy growth. But in this research, we will analyse one of the key tools that has been used in many innovative countries and that is project management approach in innovation development.

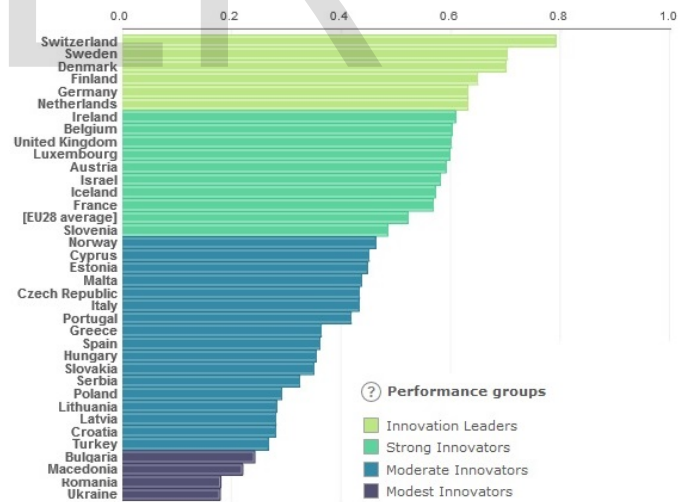


Fig. 1. Comparative analysis of innovation performance in EU Member States, other European countries,

Source: Innovation Scoreboard, European commission, 2016

All Easter European countries are in the group of the modest innovators and we can see that from different criteria regarding the level of innovation.

Innovation Scoreboard [5] is one of the measures that uses set of criteria including the number of new products invented, the percentage of high-tech jobs, and the number of graduates available to tech industry employers. It compares countries by 25 predetermined innovation dimensions and indicators. (Figure 1). Easy visible is that there is a huge difference between areas in Europe, especially between East European and the members of the European Union.

Macedonia is a Modest Innovator and the innovation performance has increased over time and the performance level is gradually increasing from 33% in 2008 to 46% in 2016. (Figure 2)

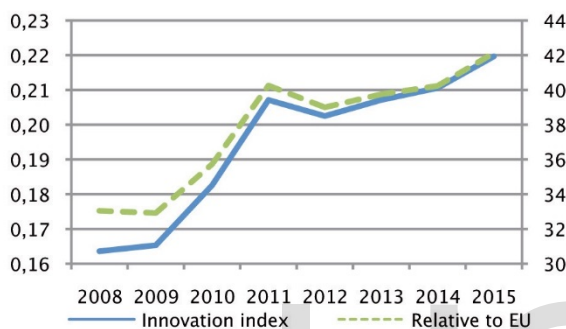


Fig. 2 Macedonia compared to the EU average
Source: Innovation Scoreboard, European commission, 2016

Another comparison comes from The Global Entrepreneurship Monitor (GEM) [2]. This index is one of the most commonly used indicators for entrepreneurial activity, where higher GEM is common for lower GDP per capita countries. Basing on the information from the report, countries are grouped regarding their GDP per capita and countries are divided into factor, efficiency and innovation driven economies.

TABLE 1.
Economies by Geographic Region and Economic Development Level

Region	Factor-Driven Economies	Efficiency-Driven Economies	Innovation-driven Economies
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Europe - EU28	Croatia ¹ , Estonia, Hungary ¹ , Latvia ¹ , Lithuania ¹ , Poland ¹ , Romania, Slovak Republic ¹	Belgium, Czech Republic, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Slovenia, Spain, Sweden, United Kingdom
Europe - Non-EU28	Bosnia and Herzegovina, Macedonia, Russia ¹ , Turkey ¹	Norway, Switzerland

¹ In transition phase between Efficiency-Driven and Innovation-Driven

Source: Global entrepreneurship monitor 2013 global report

Macedonia is in the group of efficiency driven economies that have efficiency enhance conditions that even though not directly related to entrepreneurship, they are indirectly contributing to the development of markets and entrepreneurship, leading the country in a group of innovation driven economies.

Macedonia and the other developing countries in East Europe are on different stage of application of project management, but they all have the same objective and that is to improve the way they are managing key innovative projects in all industries with modern project management approaches and well-trained professionals that will deliver projects timely, in scope and in budget. All countries also understand the importance of project management in modern businesses in the globalised world with competitiveness coming from each country.

This can be all well used in Macedonia and in all the East European countries if they all understand the issues that are affecting proper project management usage, as:

- Changes in end date of the projects, plans and schedules
- Hard to manage subcontractors
- Problems in project implementation related to law and political changes
- Limited project management professionals and lack of training for other employees

And other related problems.

Therefore, there is an urge to improve all sides of project management operations since all developing countries are accelerating their strategies for modernization and improvements in innovation through effective and efficient execution of projects of all types. All of this can be archived if more companies understand the importance of project management and the governments have to support the process in their own projects and with finding better approaches to the before mentioned problems.

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3 PROJECT MANAGEMENT TOOLS

For countries like Macedonia and the other East European countries it is important to be able to move to the innovation driven economies. Innovation includes new product development as an important organizational activity, because it provides future business opportunity for the organization and with that to the country in whole. Effective project management can help to make the right decisions, plan timely and control the whole innovation process.

Project management is crucial when it comes to keeping the whole project together throughout the whole project life-cycle. Research has shown that the intensity of project management efforts in new product development varies in each stage and it is low during the conceptual stages and higher during development [6, 10]. Because the resources are limited it is necessary to coordinate resources between multiple projects. The new available software for managing projects are allowing managing just this. All of this connected to the servers can distribute tasks and monitor progress via e-mail.

Another key improvement in new innovation product development with project management comes in defining the scope of the project. All innovative projects aim to specific market opportunity in a timely manner so there are lot of estimations that have to be done. Methods like PERT and critical path method - CPM offer some help in defining this but they are limited because of the possibility of project formulation. [12] Project management helps with the Gantt chart and milestones in it where the project is split in phases or smaller problems and we work on these smaller problems. This has to be done in a way that each subproblem is sufficiently independent of the others and they do not interfere. But the practice shows that this is very rarely. [3, 4] Each part of the project affects the others and this is very viable in high innovative projects. Most of the time there is great uncertainty regarding the full scope of the project especially for new innovation products and services. This affects the whole project and its work break structure and that is why it is necessary senior managers to set overall goals that are clear and relatively stable [1] and to leave the uncertainty to come only from this and not from their and customers unrealistic project expectations.

Timing and cost estimation and control are also key features of Project management for each new product development.

With timing we estimate activity duration and we connects activities. Here always the main issue is the underestimating (or overestimating) the time required to complete the activity. The key figure in innovation new product development project will be the Project manager and his unbiased approach to determining and managing the time of project. There is no reliable way of determining percent-complete [9] but with trained professionals with experience in the area of development the project will be managed in timely manner.

Managing the costs covers estimation of expenses, production and control activities during the project. This is important for innovative project because if we concentrate on costs and we do not allow creating new value than we are not talking for a new innovative product development project. Project management by PMBOK® Guide and MS Project software

includes only money spend. But in our case since we are analysing the whole project life cycle income must be included. In MS Project there is a budgeted cost of work performed (BCWP) that shows the cost of work that has actually been performed in carrying out a scheduled task during a specific time period.

Managing the human resources includes determining the key staff and assigning them to each activity defined in work breakdown structure. The key figure is the project manager, but not much can be figured out throughout project management regarding the motivation and leadership style as a key for project success.

Risk management is very important when it comes to innovative projects. Each project has defined risks for the schedule and costs, plus some have risks defined for technology and quality. Project management includes risk identification and analysis (qualitatively or quantitatively), and risk treatment. There are defined methods to respond to risks, transfer them, mitigate, monitor and control. This is key in new product development since as we mentioned before there are great uncertainty in each project.

4 CONCLUSION

Project management might become key toll helping Macedonia becoming innovative country. Now all of the East European countries are Efficiency-Driven economies and new innovative product development processes supported by project management will ease the development of the economies. Here we presented some of the features of project management that brings value to the innovation process. However, there are some areas, project management incompletely meets in the analyzed way.

Innovative product development projects include interconnected activities and scope and cost uncertainties. Project management brings some flexibility in some areas, as changes in work breakdown structure. But there are limitations that might come from strong holding to cost structure that will bring limitation in innovation. The scope should be understood as something that cannot be predicted previously. All of this is possible with strong developed professionals and management that understands the changes in expectations.

The challenge to move from efficiency driven to innovation driven economy stays as a task for each deferent country, as for Macedonia, as part of those countries some points have been raised in this research and much more has to be done by other researchers. This idea can be archived if more companies understand the importance of project management and the government supports the project management processes firstly in in their own projects and also with following the basic project management rules to addressee the before mentioned problems.

REFERENCES

- [1] Barczak, G., & Wilemon, D. (2003). Team member experiences in new product development: Views from the trenches. *R&D Management*, 33(5), 463-

479.

- [2] Entrepreneurship in Macedonia: part of the Global Entrepreneurship Monitor. – Skopje: Macedonian Enterprise Development Foundation, 2009.
- [3] Finger, S., & Dixon, J. (1989a). A review of research in mechanical engineering design. Part 1: Descriptive, prescriptive, and computer-based models of design process. *Research in Engineering Design*, 1, 51–67.
- [4] Finger, S., & Dixon, J. (1989b). A review of research in mechanical engineering design. Part 2: Representations, analysis, and design for the life cycle. *Research in Engineering Design*, 1, 121–137.
- [5] H. Hollanders, N. Es-Sadki, and M. Kanerva, European Innovation Scoreboard 2016, European Union, available on (<http://europa.eu>)
- [6] Lewis, M. W., Welsh, M. A., Dehler, G.E., & Green, S. G. (2002). Product development tensions: Exploring contrasting styles of project management. *Academy of Management Journal*, 45(3), 546–564.
- [7] M. Dzidrov, Lj. Stefanovska Ceravolo, S. Simeonov, From Efficiency to Innovation-Driven Economy with Stimulation of Innovation, *International Journal of Scientific & Engineering Research*, Volume 7, Issue 11, Noember-2016, ISSN 2229-5518
- [8] M. Dzidrov, S. Simeonov, S. Cvetkov, S. Dimitrov, Lj. Stefanovska Ceravolo, Study on the Importance of Knowledge, Innovation and Entrepreneurship on the Country's Progress, *International Journal of Scientific & Engineering Research*, Volume 6, Issue 11, November-2015, ISSN 2229-5518
- [9] Meredith, J. R., & Mantel, S. J. (1995). *Project management: A managerial approach* (5th ed.). New York: Wiley.
- [10] Panico, C. R. (2004). From risk to revenue. *Global Cosmetic Industry*, 172(3), 2–4.
- [11] Pons, D. (2008). Project management for new product development. *Project Management Journal*, 39(2), 82–97. doi: <http://dx.doi.org/10.1002/pmj.20052>
- [12] Sonnemans, P. J. M., Geudens, W. H. J., & Brombacher, A. C. (2003). Organizing product releases in time-driven development processes: A probabilistic analysis. *IMA Journal of Management Mathematics*, 14, 337–356.
- [13] State Statistical Office, Active Population in the Republic of Macedonia Results from the Labour Force Survey, I Quarter 2014, T-05: Activity rates of the population by age groups and gender, 2014.
- [14] The Global Competitiveness Report 2013-2014, 2.1: Country/Economy Profiles, Macedonia, FYR
- [15] The Global Competitiveness Report 2013-2014, Section One: How Innovation Capabilities Influence the Competitiveness Divide, 2014