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PROJECTS OF REGIONAL INNOVATION CLUSTERS AS A BUSINESS PROCESS

There is a programme–targeted technology management innovation project is proposed. The project is built as a business process, each step is: the content of the work, its expected results, responsible contractor, the indicator of achievement, time and budget costs – used to be a procedure. There are Obtained procedures levels, outcomes, goals, and budget expenditures. Procedures aggregation should ensure the achievement of the general objectives in the project. Technology forces the strict format of a business process description, it gains the quality of the project and its manageability. Variations on the steps of the project, which are usual for the inevitable innovations, are diagnosed and corrected timely management decisions. The projects themselves are the core of the innovation cluster, regulate relations between its members. The technology is illustrated by examples from the draft regional innovation cluster.

Key words*: project of regional innovation clusters, business process management technology projects, business process procedures, general and local goals of the project, indicators to achieve the goals.*

There are all necessary conditions for innovational activity created in Belarus at present time, but all attempts of managing its significant growth has failed. The positions of our country in the annual global ranking of innovative development for the 2015 literally crashed by 26 points: from 53 to 79.At the same time some others post–soviet countries are climbing up on tne higher rank positions. Situation with the innovational activity is getting worse in 2016. So, the share of innovative products in the total volume of products shipped (traditionally low in comparison with the leaders of the rating), has decreased to 13% in the first half to 14, 5%, shown in the same period in 2015[4]. Low innovativeness of the Belarusian economy does not allow to diversify and increase exports, threatening with the loss of traditional markets and economic growth in general.

Problems of innovation clusters development in Belarus. Targeting of innovative development, is most successfully implemented in the innovational cluster, as international experience shows. Particular interest for Belarusians cluster developers can be found in Russia– a country with a similar institutional arrangements and approaches to the innovation management. Both countries are occupying positions in the Global Innovation Index that do not match their potential, including the level of development of human capital. It should be marked that Russia during the last year has improved its state in the Global Innovation Index at 5 points, achieved the 43th place among 128 countries [5]. Russia is a member of Top–10 in terms of total expenditure on R & D (as well, as USA, China, Great Britain and Brasilia). Russian government has accepted more than 50 programme documents in the scientifical–technician and innovational policy since 2010.

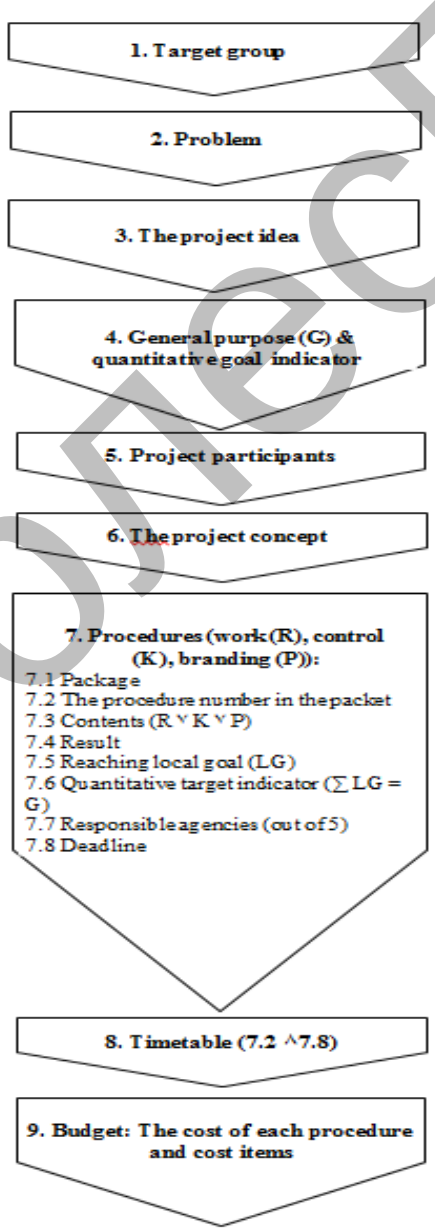
The value of clustering is recognized in the Republic of Belarus – state programs at the period of 2011–2015 was connected with creation IT and car–agrimotor clusters in Minsk, chemical cluster in Hrodno, petrochemical cluster in Novopolotsk, agrimotor cluster in Homel, chemical and textile cluster in Mogilev, linen cluster in Orsha. Neverthelss mentioned clusters have have not achieved adequate institutional forms. The core of the innovation cluster is the Center of innovation and the relations between its members are being built around the innovational projects. Such clusters are needed for Belarus promotion at the path of innovative development. Center of innovation grows out of the partnerships 'business to science'. Unfortunately, our country has small number of such examples. This means that the formation of the innovative clusters core is usually done from the zero

level, focusing on the priority areas. Our analysis shows that the reasons for braking regional cluster development in Belarus has less to do with a lack of investment, than with a appropriative ideas deficit embodied in suitable for commercialization projects [2].

Requirements for the formats of presentation of innovative projects from various levels of grantors are very general in nature, the use of modern engineering technologies is not provided. This does not conducte to proper efficiency of innovative projects, many of them are fragmentary and only conditionally meet the development priorities of the country. So, if the project is not defined quantitative indicators for the expected general and local purposes, it is impossible to control the progress to the final result and to verify its achievement.

The project is innovative cluster as a business process.Changing this situation can be attributed to the program–targeted approach to innovative design. It has established itself in the management of major economic projects, but else it requires adaptation to new field of application. The adaptation consists of incorporation modern technologies of project management. This allows one to structure design innovation cluster as a business process in the form of multi–level network processes (pic.1).

The starting point of the construction is the selection of the target group and its problems. The idea, or leading the project topic, determines the direction of solving real problems, selected in the Draft.



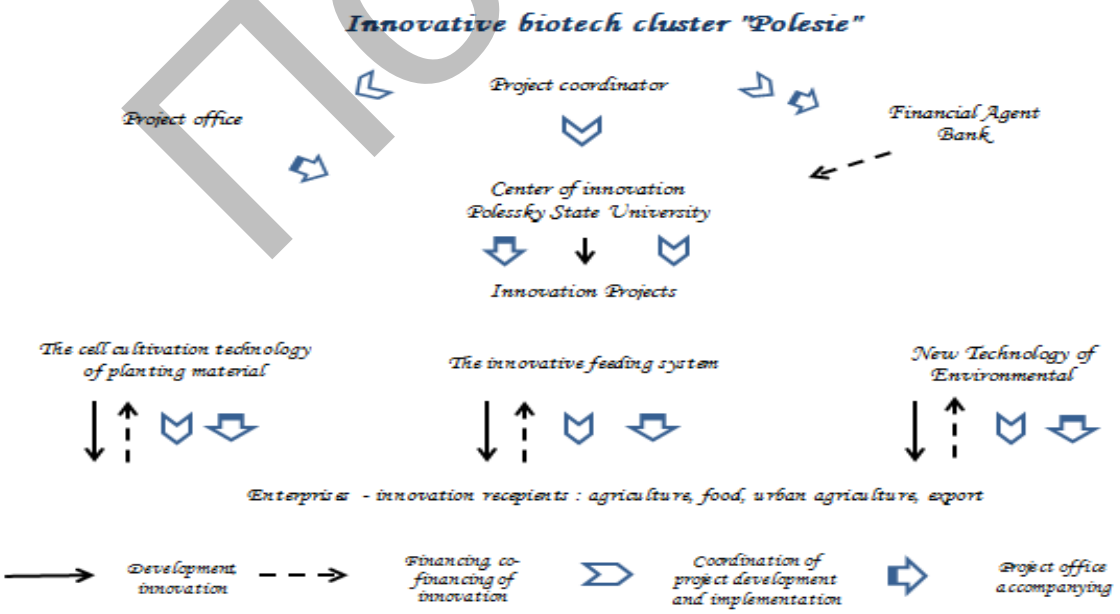
Pic. 1. – Design innovation cluster as a business process

For example, the regional livestock producers (Task Force) for a number of years been working at a loss because of low productivity (problem) that threaten their further development. Addressing the sponsors biotech cluster is associated with a break–processing systems and new feeding technology (project idea). General purpose of showing the expected result of solving problems within the project implementation period or shortly after its completion. For the General Objectives should be defined, as a rule, a quantitative indicator that will clearly establish the achievement / failure to achieve the intended result of an innovative project. An example of the Project Concept shows us in Table 1. Projects we are positioned as the core of the innovation cluster, namely, in terms of them to build relationships of its members. For example, the idea biotehnolo–cal «Polesie» regional cluster is to create a pool of subjects hozyayst–tence for the development and commercialization of innovative technologies for agriculture and environmental protection, which would be competitive on the world market and allowed to expand and diversify regional product export [3].

Selection of participants. Participants roles in the innovation cluster are following: (Coordinator) – (Center for Innovative developers–current & Projects) – (Project Office) – (financial agent) – (Enterprise, customers and recipients of innovations). Relations between the aforesaid parties are shown schematically below (pic. 2)

Table 1 – The concept of project creating a regional biotechnology innovation cluster «Polesie» (detail).

Project / theme 1	Innovative systems of animals and fish feeding
Project Coverage	Project Coverage
Duration (months):	24 months
The cost of the project	(* From the project budget)
(* From the project budget)	(* From the project budget)
General target	The share of new products (By value) in the value of sales Feed plants belonging to the cluster – 25%
target groups	Agricultural livestock farms and fish farms, feed mills,
Expected results	Increasing the productivity of livestock and fish farming in recipients of innovation is not less than 20%
Project members	Coordinator: Brest Regional Executive Committee (Belarus); Center for Innovative Development: Polessky State University Project Office: Technopark Polessky State University Recipients of Innovation: Feed mills, farms



Pic. 2 – Relations between the aforesaid parties of the project cluster

The state body should be *the coordinator* of the project cluster. The state plays a crucial role in the establishment and operation of innovative clusters even in the countries with dominated market relations. EU experience shows that 60% of the cluster initiatives funding and interactions belong to the state, and only 40% – to universities and business. The power clusters provide infrastructure and lobbying interests of the participants, all of this to carry out state tasks to improve the country's innovation potential. For Belarus the initiative and support of cluster formation by the authorities is a defining virtue traditionally important role of the state in economy. Thus, *the coordinator* is an essential participant in the cluster, it represents the state's interests in the development of innovative activity of cluster members, harmonizes and directs their actions. In our short history can be seen the prototypes of the modern state of innovation initiatives: the Soviet of–state programs of research, brings together various institutions and branches of the Academy of Sciences.

There is another, «market» perspective on the source of initiatives for the creation and development of clusters. «Market» does not deny the need for scientific planning in the field of innovation, but believes that the impetus to the development of science should come from subjects (science laboratories, individual scientists and teams). Management science in the country (for example, the Academy of Sciences) at the same time engaged in registration of disparate projects in strategic areas. According to «market» the complete transfer of all basic science work on state concept can leave behind important discoveries, eliminate competition and lead to stagnation. Our position is that in the development of innovation clusters in Belarus should be a balance of sources of initiatives with a predominance of the role of government.

Centers of innovation researches are usually placed the University and / or scientific institution with the sufficient competence to carry out research work, practically significant for enterprises participating in the cluster. For partnership 'business to science' in the innovation cluster is desired positive history of cooperation experience, however, as noted above, in our country is very few such examples. Forming the core of innovation clusters have to start from scratch, focusing on priority areas for the country.

Project Office accompanies the development, coordination, implementation, and commercialization (scale) projects submitted in the program–oriented format. Activities of the project office generates a transaction on the creation, effective out–of–the draenei and scale innovation. It is obvious that the implementation of the project office of its functions subject to additional transaction costs, unavoidable for a new institutional education. This is the cost of the coordination of actions of participants of the project to implement the steps and costs of the establishment and operation of feedback channels. The main source of the economic benefits of the cluster are:

– reduction of the above costs for development and innovation in their scale;

– use of outsourcing;

– coordination and government support work in the cluster.

In general, transaction costs should not exceed the benefits from the cooperation of cluster members:

Transaction costs <Benefits of cooperation

Financial Agent provides targeted funding of projects in time and in the amounts provided for by its budget. Clusters are often lined up around the banks authorized by the authorities, not only the financing of the program, but also profes–rata supervising the targeted use of funds and the progress of the project [1]. In modern practice, the state support of clusters are increasingly preferred subsidize interest on bank loans, which frees the state from non–core functions.

Recipients of innovations tend to become business entities that manufacture products for domestic and foreign markets. They are potentially interested in implementing new solutions, obtained by the Center of innovations.

Defining *General purpose* allows to establish cause–and–effect relationships, to find ways to achieve it, to establish the sequence of procedures in the business process technology (the project). Going to the General objectives of the project breaking etsya on individual process steps – processes packets that are setting the local–purpose, content, results and indicators, deadlines and budget costs. The logical connections in our proposed project format as a business process are shown Table 2.

Table 2 – Project logical matrix as a business process.

General target and indicators of its achievement G					
G general target and G_J local goals	Local goals 1 (G_1)	Local goals 2 G_1		Local goals N G_N	General target $G = \sum G_j$
I_J Indicators achieving local goals	I_1 – Indicators achieving G_1	I_2 Indicators achieving G_2	…	I_N Indicators achieving G_N	I General target indicators achieving
R_j Description of local operating procedures	R_1 Job 1: content and results	R_2 Job 2: content and results	…	R_N Job N : content and results	R_j Description of local operating procedures
K_j Job control procedure	K_1 Job control procedure R_1 and achievement G_1	K_2 Job control procedure R_2 и and achievement G_1	…	K_N Job control procedure R_N and achievement G_N	Procedure of achievement General target control
P_j Ambient procedures	P_1 Ambient procedures upon result R_1	P_2 Ambient procedures upon result R_2	…	P_N Ambient procedures upon result R_N	Ambient procedures upon project finishing
T_j Work schedule and procedures	T_1 turnaround time and procedures K_1 P_1, R_1	T_2 turnaround time and procedures R_2 K_2 P_2	…	T_N turnaround time and procedures K_N, R_N, P_N	Project schedule (business process)
H_j Work and procedures perfomers	H_1 Perfomers and co–perfomers of work and procedures R_1, K_1 P_1	H_2 Perfomers and co–perfomers of work and procedures R_2 K_2 P_2	…	H_N Perfomers and co–perfomers of work and procedures K_N, R_N, P_N	H_j Perfomers and co–perfomers of work and procedures
B_j The budget of the project and work procedures	B_1 Budget R_1, K_1, P_1	B_2 Budget R_2 K_2, P_2	…	B_N Budget R_N P_N K_N	The Project Budget
Audit of cost work and procedures	A_1 Procedure expenses audit R_1, K_1, P_1	A_2 Procedure expenses audit R_2, K_2 P_2	…	A_N Procedure expenses audit R_N, P_N, K_N	The auditor's report on the budget of the whole project

Manageability of the project largely depends on its structuring. Proposed format of the development and implementation of the project provides for the isolation of the types of procedures: working (R), the control (K) and image (P). Description of the working procedures include: the maintenance work, the result indicator of achievement, artist and execution time (example shown in Table 3).

The important place belongs to the control procedures which should provide control of the project Examples of such procedures are shown in Table 4. For the successful implementation of control procedures is necessary that for each working procedure1) set measurable results associated with a private purpose, 2) indicated responsible executors and 3) scheduled start–date of completion of works, 4) identified the cost of implementation of the budget.

Table 3 – Description of working (R) Project business process procedures (detail).

1 Package procedures	Determination of the starting lineup of participants and forms of cooperation in the project «The innovative feeding system» bio-technological regional innovative cluster (BRIK)	
Description of the targets and content of the pack	Co–operation and communication among project participants in the cluster, with the target groups. Harmonization of approaches to the organization of the project work	
R 1.1.	Establishing cooperation between the project partners and stakeholders, including representatives of the authorities	
Deadline	Months 1–2	
Targets and description of the work	Establishment of business contacts between participants of the project, as well as interaction with the target groups and other projects on the feeding system.	
Responsible	Coordinator, Co–Coordinator, Innovation Center	
Interaction	All potential participants in the cluster, and other stakeholders	
Progress indicator	***Product***	***Results***
Monthes 1–2	2 meeting of the project participants, representatives of the target groups and stakeholders at the sites where samples were tested feeding systems.	The project participants are defined. Established contacts with representatives of target groups and representatives of target groups (at least 100 contacts). Coordinated detailed project procedures.
R 1.2.	Development of the structure and procedures of the Project Office (PO) in the BRIC Polessky State University	
Deadline	Months 1–3	
Targets and description of the work	Development, coordination provisions on the structure of the Project Office and the status of the BRIC in Polessky State University (Pinsk)	
Responsible	Project office	
Interaction	Coordinator, Innovation Center, Financial Agent	
Progress indicator	***Product***	***Results***
Monthes 1–3	Agreed by participants of the project «Provision on the project office»	Project office is created and working

Procedures for creating and maintaining the image of Innovation Cluster and publicity of its work are integral parts of the modern large–scale project. Their content and purpose, as well as the possible outcomes and their indicators are clearly shown in Table 5.

Table 4 – Description of controls (K) project management procedures (detail)

4 1 Package procedures	Quality control procedures for the implementation of the project work	
Description of the targets and content of the pack	Providing Project handling, assessment of achievement of the planned objectives of the local results	
K 4.1.	Methods and indicators for assessing the degree of achievement of expected results, methodology for conducting surveys of target groups	
Duration	Months 1–4	
Targets and description of the work	Create methodology for assessing achievement and lo–local project quality control	
Responsible	Project office	
Interaction	Development Center, recipients, financial agent, coordinator	
Progress indicator	**Product**	**Result**

Monthes 5–9	Methodology to evaluate the participation of nicknames cluster quality of the works, to achieve local objectives	Developed tools to assess the quality of implementation of the project work steps
K 4.2	Weekly internal monitoring of progress on the planned indicators and the results of the Project	
Duration	Months 1–24	
Targets and description of the work	Performing weekly project progress control	
Responsible	Project office	
Interaction	Coordinator, Development Center, recipients	
Progress indicator	**Product**	**Results**
Monthes 1–24	Available to cluster participants electronic schedule of works on the Project and the results achieved	Well –managed products
K4.N.	Audit of Project costs	
Duration	Month 24	
Targets and description of the work	Audit reports on the results of the project	
Responsible	Auditing company	
Interaction	Cluster members	
Progress indicator	**Product**	**Results**
Month 24	audit Act	Confirmation of expenditure by auditing company

Project schedules gather all procedures (performance, control, image) and the timing of their implementation. This is a working document for the Project Management and Coordinator. Its construction allows to evenly distribute the load on the work execution period and to monitor their implementation (Table 6). In addition, it becomes possible to set a reasonable time, the balance of the main (working) procedure, on the one hand, and complementary (fashion, and control) – on the other.

Conclusions. The main advantages of the proposed programme–targeted technology management innovation project as follows:

–rigid logical structuring makes the project developers to define in detail all the steps to achieve the goals of the General, the results, timing, budget, and argue that the consistent achievement of local objectives will lead to the General purpose.

Table 5 – Description of image (P) innovation project procedures (detail)

5 Package of tasks	Distribution and operation of the Project	
Description of the purpose and content of the pack	Ensuring project handling, and communication and feedback of participants and stakeholders, dissemination of information about the project	
P 5.1.	Development of the project web site. Continuous filling and placement of online information about the progress and results of the project, stakeholders forum	
Duration	Monthes 5-12	
Targets and description of the work	Site development in order to ensure communication and dissemination of information about the project. Regular updates	
Responsible	Project office	
Interaction	Coordinator, Development Center, members of the cluster, The interested-ested persons	
Progress indicator	**Producs**	**Results**
Monthes 5-10	The structure of the site and its services, identified those responsible for maintenance of the site	Providing communication and feedback opportunities, the formation of the image of the project. Counter Hits:

	and an expert assessment of its role in the dissemination and exploitation of the project.	not less than 1,500 visits in the first 12 months of the project
Monthes 7-24	The active site of the project. A survey of users and expert evaluation of the implementation of tasks for communication, dissemination and exploitation of project	Data to assess the progress of the project results, dissemination of information to market participants, the formation of the image of the project and its participants
P 5.2.	Creating a page on Facebook its information support	
Duration	Monthes 6-12	
Targets and description of the work	Развитие коммуникации с пользователями, распространение информации о выполняемом Проекте	
Responsible	Project office	
Interaction	Coordinator, Center for Research on feeding systems, cluster members, stakeholders	
Progress indicator	**Product**	**Results**
Monthes 6-12	Page on Facebook.	Dissemination of information and knowledge, high image of the project, and its participants

Table 6 –Sample timetable of the Project on Biotechnology Regional Innovation Cluster (BRIC) «Polesie» (detail).

Procedures / months	1	2	i	N
R 1.1. Establishing cooperation between the project partners and target groups under the supervision of the Coordinator				
R 1.2. Development of the structure and procedures of the Project Office (PO) in the BRIC Polessky State University				
R 1.3.Rental and purchase of premises (rental) of equipment for the B				
P 1.4. A public presentation of the project				
…				
К4.6. Audit of project costs				
P 5.1. Development of the project website. Continuous filling and placement of online information about the progress and results of the project, stakeholders forum				
P 5.2. Creating a page in Facebook & its information support				

At the stage of project management incrementally achieves the expected value of the general objectives of the project according to the schedule, milestones and budget;

–structuring business process creates opportunities for Menage–ment Project Office continuously manage the progress of the project and for the Coordinator to establish terms and methods of coordination of actions;

– formalized business process structure is suitable for the creation of software tools supporting project management;

–control procedures the result of each working step of the project will allow to diagnose abnormalities and correct them. As practice shows, in the implementation of large–scale projects by the General and private goals are subjected to multiple adjustments. Substitutions in the procedures, terms and costs of the project steps inherent in innovation, become transparent if you use software and target format of the project.

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Л.Е. СОВИК

Р.Н. ЛОСЕВ

ПРОЕКТ РЕГИОНАЛЬНОГО ИННОВАЦИОННОГО КЛАСТЕРА КАК БИЗНЕС–ПРОЦЕСС

Предложена программно–целевая технология разработки и управления инновационным проектом. Проект строится как бизнес–процесс, каждый шаг – это процедура: содержание работы, ее ожидаемый результат, ответственный исполнитель, индикатор достижения цели, сроки и бюджет расходов. Выделены уровни процедур, результатов, целей и бюджетных расходов, агрегирование процедур должно обеспечить достижение генеральной цели проекта. Технология придает строгий формат описанию бизнес–процесса, что поддерживает качество проекта и его управляемость. Отклонения на шагах проекта, неизбежные при нововведениях, диагностируются и корректируются своевременными управленческими решениями. Сами проекты выступают ядром инновационного кластера, регламентируют взаимоотношения его участников. Технология иллюстрирована примерами из проекта регионального инновационного кластера.

Ключевые слова: *Проект регионального инновационного кластера, бизнес процесс, технология менеджмента проекта, процедуры бизнес–процесса, генеральная и локальные цели проекта, индикаторы достижения целей.*

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