

Concepttion of simulating the processes of innovative projects initialization for agro-industrial production in Ukraine

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Abstract. The article is focused on preconditions and general conception of simulating the processes of innovative projects initialization with establishing production and processing complexes on the industrial facilities and material and technical basis of agricultural enterprises. The paper suggests the conceptual model of the processes of initialization of introducing innovative projects of production and processing complexes for agribusiness of Ukraine. The suggested conceptual model reveals the sequential and mutual dependence of the processes of initialization of the determined innovative projects.

The received results allow to start the construction of algorithm and mathematical program of simulating the processes of initialization of innovative projects of introducing production and processing complex.

The further research is aimed at the development of methods and instruments of effective management of the processes of initialization of innovative projects of introducing production and processing complexes to improve agribusiness production in Ukraine.

Key words: innovative project, management of project, conceptual model, initialization processes, agricultural enterprise, production and processing complex.

STATEMENT OF THE PROBLEMS

One of the freshest and the most advanced ways of achieving high-effective modern agricultural production in Ukraine capable to put it at the new technically-technological and socially-economical level is the integrated approach in running of agricultural enterprises (AE) - from crops growing and conservation to their complete processing and getting the forms of finished goods. Therefore the theoretical argumentation of the expediency and realization of the projects of production and processing complexes (PPC) formed on production facilities and material and technical basis of AE proved to be a vital scientific and technical problem in the field of management of projects.

Improvement of agribusiness production in Ukraine needs innovative projects of production and processing complexes (IP of PPC) which will be formed on the production facilities and material and technical basis of the valid or new-formed AE. Investment attractiveness of such innovative projects with introducing production and processing complexes in agrarian sector of the country should secure a rapid and successful search of the interest of investors and the successful realization of their financials facilities.

The investment interests in the innovative projects of PPC are formed with consideration of the results of identification of each of the projects on the stage of their initialization. Therefore, the problem of management of the projects and initialization of IP of PPC is important both in theoretical approach in the practice of agrarian management of planning of the country.

THE ANALYSIS OF SCIENTIFIC RESEARCHES AND PUBLICATIONS

Methods and instruments of management of production have been staying in the focus of attention of many analysts for a very long time and are examined comprehensively in the earlier and current scientific literature, e.g. [1, 2]. As far as the management of projects and programs is concerned, its theoretical principles are developed in the works of many famous scholars including a group of our contemporaries: H. Tanaka, S. Bushuev [3] V. Hohunskyy [4], A. Rybak [5], V. Rach [6] and others. A large group of researchers in the field of management of projects and programs (S. Chernov and K. Koshkin [7], Yu. Teslja [8], E. Druzhynin [9], Yu. Rak [10], I. Kononenko [11] and others) work at the practical application of management instruments of introducing innovative projects and programs in various areas of production and social activities in Ukraine.

The problem of raising efficiency of agrarian production by means of the of development of theory of management of projects is in the focus of attention of

such scholars as: O. Sydoruk [12, 13, 14], A. Truhuba [14, 15], P. Lub [14] A. Sharybura [15] and others. They develop new and improve the valid methods and models of management of projects aimed at raising efficiency and competitiveness of agrarian production in Ukraine.

The researchers discuss scientific and methodological problems of management of innovative projects of production and processing complexes formed on the basis of AE. They also carried out theoretical argumentation of expediency and realization of such projects [16, 17]. They distinguished characteristics of the product of innovative projects focused on formation of PPC and carried out scientifically-practical studies of their influence upon the processes of initialization of the mentioned above projects in the practice of functioning of agro-industrial complex (AIC) of Ukraine [18].

Nevertheless, in our opinion, introduction of IP of PPC into AIC of our country, which is capable to effect considerably the development of our rural settlements and their neighboring territories is restricted by the fact that the theory of management of projects lacks correct scientific argumentation of the methods of management of processes of initialization of such projects.

AIM AND TASK OF THE RESEARCH

The aim of the given research is to make argumentation of the conception and to suggest the conceptual model of the development of the processes of initialization of innovation projects with forming production and processing complexes of agricultural enterprises of Ukraine on the production facilities and material and technical basis of the valid or new-formed AE for the balanced development of rural settlements and their neighboring territories.

The objective of the given research is to analyze the succession and interdependence of the processes of initialization of IP of PPC as well as interrelations between them.

THE RESULTS OF THE RESEARCH AND THEIR ANALYSIS

Current agrarian production is influenced by the considerable risks of both objective (agro-technical and weather conditions) and subjective (the human factor) character. Therefore, potential abilities of AE in their achieving higher production results are often restricted by either incompletely controlled or incompletely forecasted factors.

This leads to the unprofitability of production and sufficient financial losses. The process of getting agricultural raw material starting from the stage of crops growing to their sale is long (9-12 months) and causes the potential sufficient financial losses at all stages of production. In our opinion, one of the possible ways of overcoming the risks or decreasing their results and, in addition, of suggesting the chance of additional profits at rather small capital investment is the idea of forming IP of PPC on the basis of production facilities of the valid AE.

The main aim of PPC is not only growing and realization of agricultural products in maximum possible volumes, but also production and sales of finished

goods manufactured on their own raw materials. We believe, such a model of PPC functioning has the chance to get much higher index of profitability of agrarian production of the given AE, i.e. to create additional value.

The result of every PPC agrarian production is the function of such indexes [16]:

$$V = f(K_T, P_S, F_G, A_G, G_Z, R_S), \quad (1)$$

where: K_T - the traditional sowing of cultures in the economies of the region; P_S - an area of agricultural lands; F_G - physical and mechanical properties of soils; A_G - agro-technical properties of soils; G_Z - configuration of fields; R_S - the demand on this raw material at the market:

$$Q = f(N_M, U_K, P_T, G_K, O_P, Z_P), \quad (2)$$

where N_M - the quality of seminal material; U_K - the productivity of cultures; P_T - the productivity of animal husbandry; G_K - soils and climatic terms; O_P - the organization of mechanized processes in a crop-growing and husbandry; Z_P - the storage of raw material.

The efficiency of processing production also depends on such factors:

$$S = f(C_P, C_S, W_P, Q_S), \quad (3)$$

where: C_P , C_S - a realized price, according to finished goods and its raw material; W_P - finished goods volumes of every PPC; Q_S - the amount of the grown raw material for a given of finished goods:

$$W = f(V_P, B_P, T_P, K_P), \quad (4)$$

where: V_P - a commodity unit cost; B_P - the losses of products in raw material up to the moment of reprocessing; T_P - transport charges; K_P - capital investments on creation of PPC.

Production-processing complex is an agro-industrial enterprise established for growing agricultural raw materials and procession of their sufficient part for the output of finished goods (Fig. 1).

Functional structure of PPC should comprise: agricultural lands, animal farms with facilities and high-productive animals, machine and tractor fleet (MTF), warehouses and storehouses with their technological equipment, and a number of small-sized processing enterprises (SPE) with their premises and technological equipment for processing agricultural raw materials, as well as, production infrastructure, system of energy- and resources provision, transport, communication, etc. and system of controlling the given complex. The conception of simulating the processes of innovative projects initialization with establishing production-processing complex, formed on the industrial facilities and material and technical basis of agricultural enterprises considers the following theoretical preconditions.

Processes of initialization of IP of PPC need, primarily, generating the very idea of such a project, i.e., the previous initialization (initialization of initialization), and identification which means the technically-economic argumentation of the vital capacity of PPC as an agro-industrial unit. These factors prove the efficiency of functioning of such complex. The process of identification of the project will be explained by means of the scheme (Fig.2).

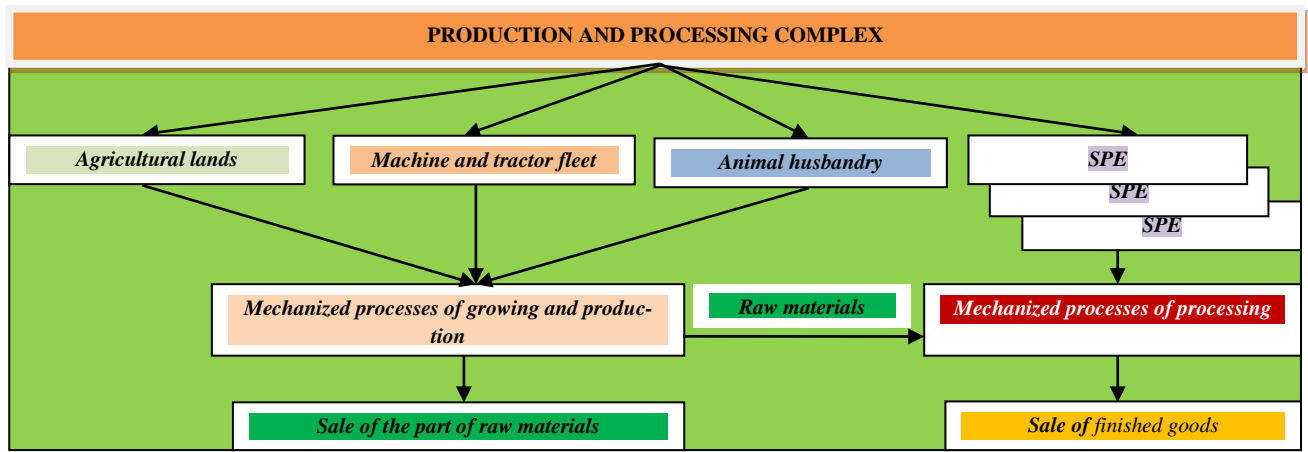


Fig. 1. Scheme of production and processing complex formed on the basis of AE

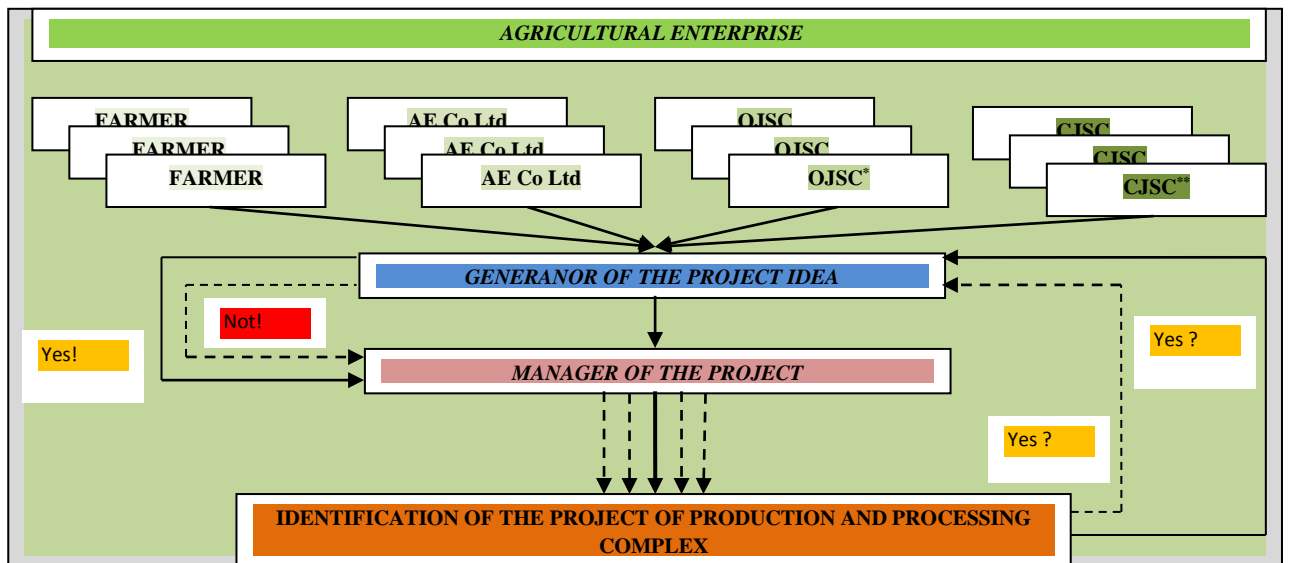


Fig. 2. Process of identification of the project of the production and processing complex OJSC* - Opened Joint-Stock Company; CJSC** - Closed Joint-Stock Company

The generator of the idea of innovative project PPC is a physical or juridical person interested in the project and in fact the user of the given product in the future. The generator of the project idea should consider and be able to explain the manager of the project the need in the product, evaluate adequately the financial situation and opportunities for investments. Taking all these factors into consideration the generator of the idea of PPC project must be able to formulate the order for identification of the project. The manager of the project and the generator of the idea (in the main he is the customer of the project and the user of its product in the future) hold conceptual negotiations about the configuration of the project, its aims and ways of achieving them. The project manager carries out initial technically-economic argumentation and coordination with the previous configuration of the project of PPC with the interested persons to clarify its actuality. In our opinion, the initiators (customers and (or) users of the product of IP of PPC) may be [18]:

- managers of valid AE in order to increase profitability of agrarian production;
- managers of food (processing) enterprises in order receive their own sources of agricultural raw ma-

terials (sugar, brewery, fruit- and vegetable processing enterprises, etc.) to decrease the cost of production;

- interested investors (juridical and physical persons) for effective investments of their capital and getting the additional profits or, if they want, to expand the sphere of commercial activity;

- managers of rural (territorial) or district councils of deputies, administrative district, region or Ministry of agrarian policy and food staff of Ukraine to realize fresh opportunities (financially- economic, material and technical, social and cultural, ecological, etc.).

1. Processes of initialization of innovative projects with establishing production-processing complex on the basis of AE as other processes of management of such projects depend sufficiently on their product, to be more exact - on its properties. The product of such a project may be considered as:

- solving of the existing problem;
- amount of the received new products and services after achieving the mission of the project;
- production-processing complex, established on the basis of the existing AE or new-formed enterprises.

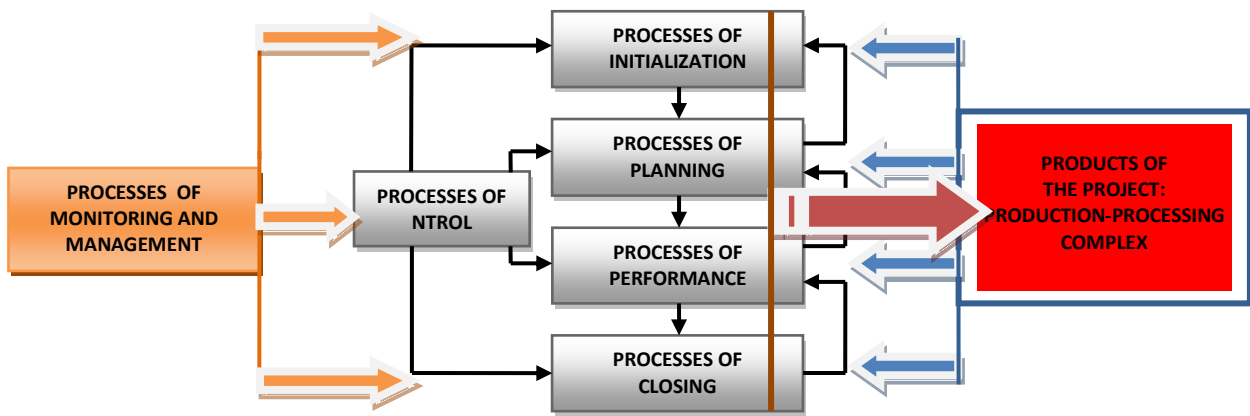


Fig. 3. Influence of the product of IP of PPC on the interrelations in number of processes of management of its elements

Solution of the main problem of AIC of Ukraine concerning the increase of effective current agricultural production opens new perspectives: financially-economic, material and technical, social and cultural, ecological, etc. Realization of these new possibilities proved to mean the amount of received new products and services caused by introduction of IP of PPC. All of them are received after achieving the mission of the product of PPC. Coming from the said above we arrived at the position that the product of IP of PPC is the production-processing complex itself. Let us analyze the position and function of the product of IP of PPC in the number of the processes of management of the projects (Fig. 3). As we see, the product of IP of PPC (more exactly: its properties) perform the reverse influence on all groups of the processes of management of the elements of the given project. Nevertheless, the product of the project is a main result and its mission the reason of its initial. Thus we may confirm the dialectical unity, interconnection and interdependence of the process and its result: the project is supervised process of creation a unique product, i.e. PPC. However, the properties of this product conduct a sufficient reverse influence on all processes of management of elements of this innovative project.

The properties of the product of IP of PPC fall into quantitative and qualitative ones [18].

The quantitative properties are considered to be the following:

- 1) production program: the project specialization (types of the grown or received production) and power (quality of production) of agricultural and processing production in the given production-processing complex;
- 2) capital investment: necessary single-action money expenditures for introduction of innovative project of establishing PPC;
- 3) level of profitability: determining of efficiency of production after launching PPC, considering only agricultural operations innovation project, i.e. getting of value added;
- 4) term of payability: the term denoting investment sums returning into innovative project of establishing the production-processing complex based on the given AE.

The qualitative properties of the product of PPC are:

- 1) innovation: the level of application of nanotechnologies in the project of PPC and the most advanced facilities, methods and means of management of its functioning,
- 2) investment efficiency: the interest and attraction for involving and investing money into innovative project of forming PPC for juridical or physical person,
- 3) value: causing sufficient economic, social, cultural and ecological changes in the given territory after opening the PCC,
- 4) motivation: adaptivity, ability of the innovative project of PPC to initiate and introduce.

Let us analyze the influence of quantitative and qualitative properties of the product of innovative projects of establishing PPC on the processes of initialization of such projects which is obligatory for starting any project (Fig. 4).

3. As a result of the first two preconditions of the conception of simulation the processes of initialization of IP of PPC directly depend on the level of identification of each of these projects, its configuration, conception and content, and, first of all, on the properties of the product of every project.

Quantitative properties of the product influence directly the identification and configuration of the project (the expediency and need in it), types and volumes of operations for its introduction, terms of their performance as well as the expenditures of resources and money and indirectly its conception and content (mission of the project, its aims, amount of the received products and services).

Qualitative properties of the product conduct the influence in the reversal form: they determine conception and content of the project and indirectly influence the configuration and it's identify. Impact of quantitative and qualitative properties of the product, however, is complex and interrelated and, therefore, one must reveal and evaluate quantitatively the weight of every component.

Let us show the development of the processes of initialization of the innovative project of establishing PPC in the form of the following model suggested by us in [19] (Fig 5).

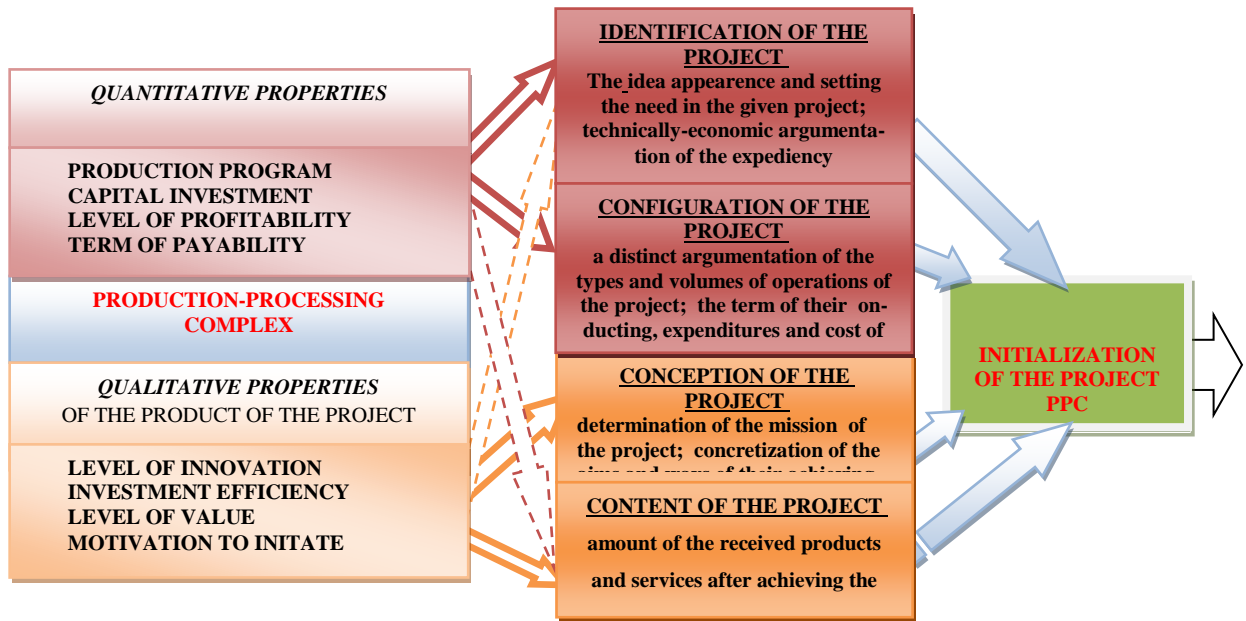


Fig. 4. Model of the influence of quantitative and qualitative properties of the product of IP of PPC on processes of initialization of the projects

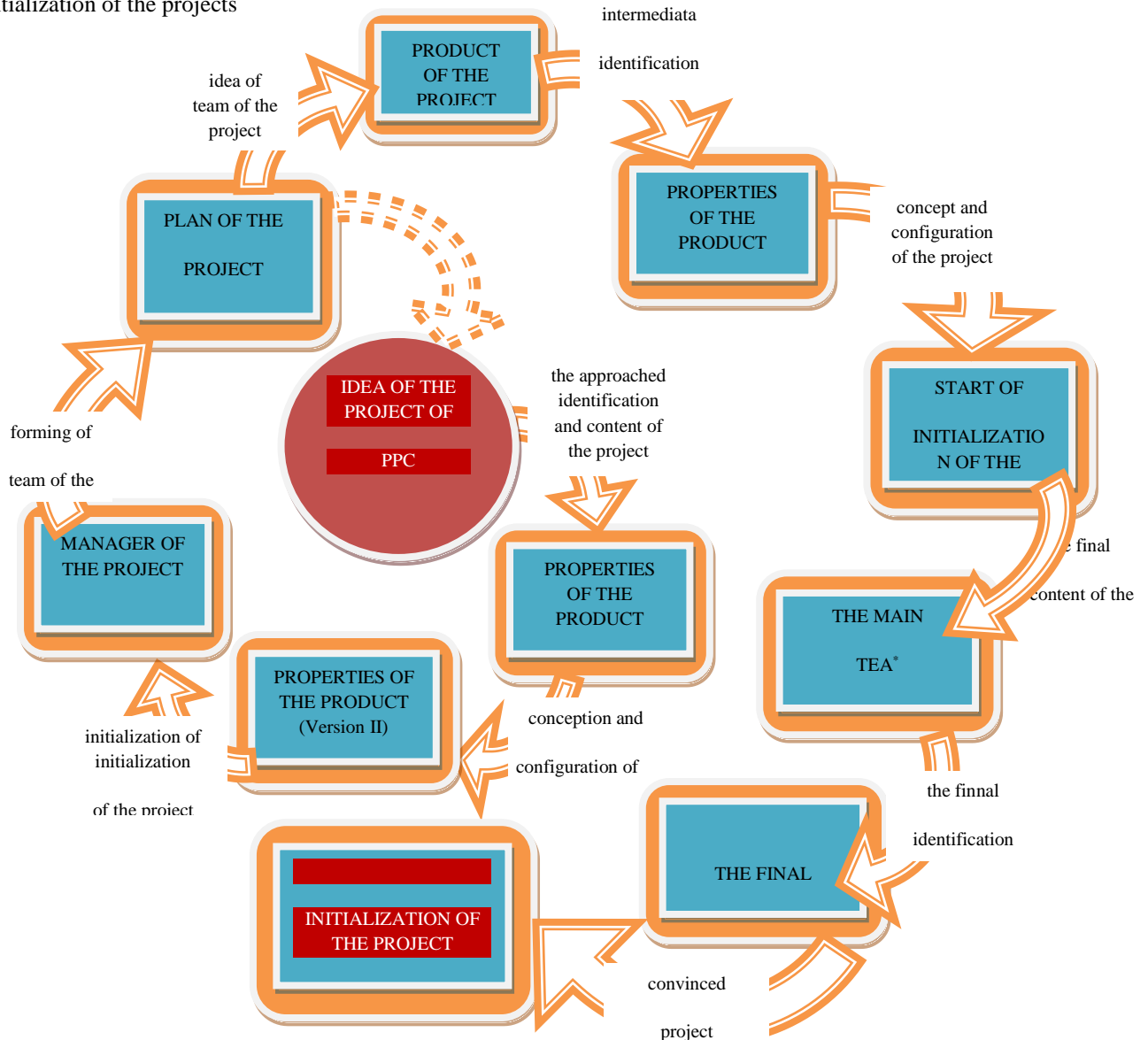


Fig. 5. Conceptual model of the development of the processes of initialization of IP of PPC TEA* – technically-economic argumentation of the IP of PPC

The idea of introduction of the IP of PPC in the processes of initialization is of a great importance for starting every project. Motivation of initialization and introduction of innovative projects of PPC should be dominant. Any of the projects cannot do without it (it cannot stop or be completed at any moment of its life cycle). The project should be motivated at the very start of its idea. Therefore, when dealing with the processes of initialization of IP of PPC, one should consider the level of interest in such projects of every its participants. One should also identify all possible risks and develop methods of their overcoming or diminishing their negative results.

Processes of initialization of innovative project of establishing PPC, which are conducted by iterative steps can fall into three stages depending on the stages of formulating properties of the product of IP of production-processing complex (Fig. 5):

I-st stage - defining properties of the product (version I) after approached identification of the idea and content of the project;

II-nd stage – initial evaluation of the properties of the product (version II) after distinguishing conception and configuration of the project;

III-rd stage – project team's understanding of the essence of a target manufactured commodity and its potential properties (version III).

The pointed out stages of the development of the processes of initialization of innovative project of establishing PPC, according to the stages of concretization of the product properties of every each project are conducted during the pre-investment phase of the its life cycle.

Processes of formalized start of initialization of IP of PPC take place already at the investment phase, when the main technically-economic argumentation (TEA) and development of the final plan of the project are conducted.

CONCLUSIONS

The suggested conception of simulating processes of initialization of innovative projects (IP) with establishing production-processing complex (PPC) formed on the industrial facilities and material and technical basis of agricultural enterprises (AE) formulates the pre-conditions for the successful management of practical realization of these processes.

The suggested conceptual model discusses the concession of the development of the processes of initialization of IP of PRC formed on the basis of AE. The developed conceptual model allows to understand better the peculiarities of appearance and development of the processes of initialization of innovative projects.

The received results allow to develop algorithm and mathematical program of simulation of processes of initialization of innovative projects of establishing production-processing complexes.

The further perspectives of our research will be connected with setting and evaluating interrelations within the processes of initialization of the project and getting the instruments for effective management of these processes.

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