

INCONEXT
Internatiolization Consulting

**INNOVATION AND CREATIVITY
MANAGEMENT**

Training material

Part 4

INCONEXT PROJECT

**Supported by:
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1. Process Innovation

1.1. Management of Innovative Activities (Process)

When dealing with peculiarities of innovative activity management, it is necessary to indicate ways of idea generation:

- The idea is generated by the needs of the market;
- The idea is generated in research laboratories or design offices.

Scientific institutions create a quarter of innovations that cause major changes or form the basis for new innovations and therefore are of greater importance.

Approximately two thirds of innovative products are created on the basis of problems or ideas that were conditioned by market (consumer) needs.

1.2. Innovation Strategies and Their Concept

The concept of the innovation strategy is often perceived as the totality of action selection laws depending on the circumstances of external impact.

The innovation strategy is an action plan that is developed in accordance with incoming environmental signals. It consists of the following components:

- Products and the market;
- Prospects for the growth of new products and markets;
- Competitive advantage;
- Synergy of enterprise capabilities;
- Decision making.

The creation and promotion of innovation strategies require strategic planning. This is a process that involves defining long-term (strategic) goals and achieving them through foreseen measures. The creation and promotion of innovation strategies are one of the main conditions necessary for the enhancement of international and local rivalry. The following innovation strategies are developed on a frequent basis:

- Offense strategies which are employed by enterprises that are the first to create and introduce the new product to the market;
- Defence strategies, which allow enterprises to retain their positions in the market. It is used to retain the created niche and to prevent more advantageous products that serve the same purpose from entering it;
- Imitation strategies, which are employed by enterprises that modify the product to be introduced to the market.

The main characteristic feature of innovation strategies is innovation implementation regardless of the existing risk factors (indeterminacies).

The strategy of innovation creation and promotion has to be a constituent part of the general strategy employed by the enterprise. In a fast-changing and highly competitive environment quick response and flexibility are the fundamental assumptions for the successful implementation of innovations.

1.3. Interaction between Business and Science in the Innovation Process

Interests of employees working for scientific and business institutions are harmonized through:

- The use of training programmes that ensure the general understanding of the subject;
- The creation of structures that ensure effective cooperation between science and business representatives;
- The reallocation of personnel to shape long-term objectives and strategies for the development of certain branches of economy.

Innovative activities are oriented towards change implementation. On a frequent basis innovation promotion means a certain level of resistance. The success of innovative activities considerably depends on the qualification and experience of managerial staff. An entrepreneur with certain features guarantees the success of innovative activities, as all successful projects always have at least one smart and qualified leader. Research data reveal that:

- The average age of such entrepreneurs is 30;
- They have a Master's (or higher) degree;
- They were previously involved in the processes of innovation implementation;
- Half of such entrepreneurs come from families that developed their own business.

The process of innovation promotion has its risk factors that can be divided into three major groups:

- Risks related to the technical-technological decision (technical-technological indeterminacy due to implementation possibilities).
- Risks related to the existing markets (market indeterminacy). The product that is created during the implementation of the innovative project may become undesirable by consumers (as a result of changes in consumer

needs, a longer project implementation period, better rival products and etc.).

- Risks related to the staff qualification (process indeterminacy). Employees may lack qualification and motivation and may fail to manage innovation promotion.

There are three main problems related to the management of innovative activities:

- Failure to harmonize business and science interests;
- Resistance of participants of innovative activities to change;
- Insufficient qualification of participants of innovative activities.

1.4. Organization of Innovative Activities (Process)

The organization of innovative activities can be understood as the totality of structures and measures, which allows carrying out coordinated activities belonging to separate segments through the optimal use of the existing resources. Goal achievement becomes the crucial factor, since it determines the value of innovative activities. The final result of innovative activities consists of separate tasks that are accomplished using time and other resources. The organization of innovative activities involves:

- Dividing activities into individual operations;
- Forming management structures;
- Setting out production (service supply) measures;
- Creating jobs and describing activities;
- Developing auxiliary measures for the main activities.

Directors of innovative activities make decisions that allow accomplishing goals and organize the rest part of activities.

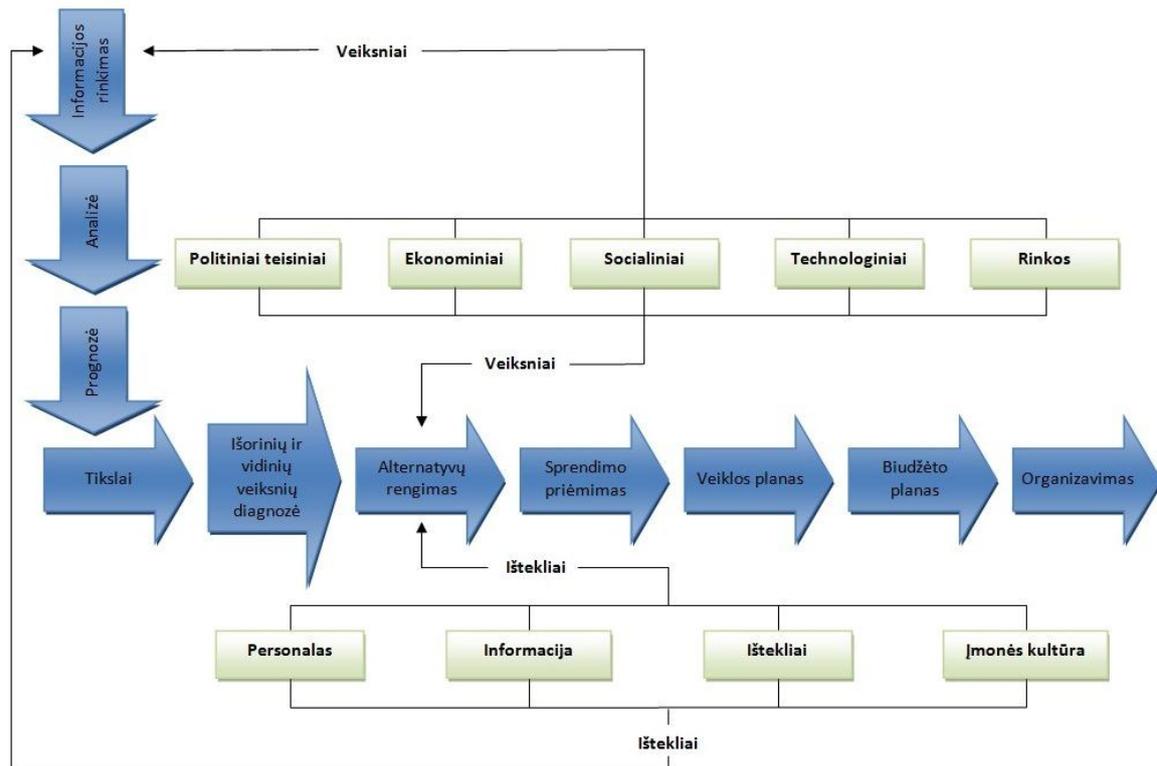
This produces the organisational structure that enables employees to achieve their objectives.

The plan will include all the necessary details, i.e. information on what, when and how everything will be accomplished, who will perform everything, what resources and what amount of resources will be required, the sequence of tasks to be implemented and other factors. However, based on the obtained results, external changes and new circumstances, the plan and resources will be adjusted accordingly.

2. The Process of Innovation

2.1. The processes for innovation planning

The process of innovation planning is a very accurate work that requires assessment of both external and internal factors and their changes. The proposed summarizing scheme of planning of innovation process is shown below (source: <http://www.inovacijos.lt>).



Veiksniai – forces

Tikslai – the goals

Politiniai – teisiniai – political legal

Išorinių ir vidinių veiksnių diagnozė – diagnostic of external and internal forces

Ekonominiai – economical alternatives

Alternatyvų rengimas – preparation of

Socialiniai – social making

Sprendimo priėmimas – decision –

Technologiniai- technological activity plan

Veiklos planas – the

Rinkos –market

Biudžeto planas – the budget plan

Informacijos rinkimas – information gathering organization

Organizavimas –

Analizė – the analysis

Ištekliai – resources

Prognozė – prognosis

Personalas – personnel

Informacija – information

Įmonės kultūra – Company culture

The application of this scheme allows a detailed assessment of all possible forces affecting the success of the implementation of the process of innovation. These forces are: political-legal, economical, social, technological and market forces.

- **Political-legal forces.** State economic policies and its approach to the process of innovation.
- **Economical forces.** Internal company, state and international economic situation regardless of whether they directly or indirectly affect the process of innovation.
- **Social forces.** Changing public relations, habits, attitudes and dispositions can determine the process of innovation, therefore it is necessary to effectively respond to the social forces themselves and their changes.
- **Technological (technical) forces.** The effectiveness of the production-oriented process of innovation is mainly determined by technological changes that are constantly taking place in the external environment. Ignoring this force the result of the innovation process may become non-competitive. Failure to timely respond to the changes of innovation process can be a serious obstacle for the process of innovation.
- **Market forces.** The product or service of the process of innovation, their price and quantity, market receptiveness, the situation in relation to competitors and other issues belong to market forces.

In addition to the external forces, internal company resources/forces such as personnel, information, resources, organizational culture are also of great importance.

The objective assessment of external forces and internal resources allows us to choose specific objectives of the process of innovation and to prepare their implementation plan.

2.2 The Innovation Process Control

The Innovation Action Plans are considered as the basis for comparison of proposed and implemented actions, in other words, the source point of the control. Only control can help managers of the process of innovation to find the answer to the question of how implementation of the project moved forward towards the goal. One of the most important features of control is that it must include planning, organization, motivation and other areas. According to the

moment of execution of control we can highlight three main types of control: *preliminary, current and final.*

Preliminary control of financial resources is the budget. It is a mechanism of preliminary control of financial resources in the sense that it guarantees the presence of necessary funds for the process of innovation.

Current control of the process of innovation must be carried out directly in the beginning of the work. This is a regular control of the processes and intermediate outcomes which helps to avoid the gap between the plan and the outcomes.

The common for all feedback systems is that they have the following purposes: use external resources, transform external resources for the internal use and determine deviations from the objectives set out, correct deviations and ensure implementation of the objectives.

During the *final* control the feedback is used when the work is done. The results are compared with the requirements. The managers of the process of innovation have the possibility to better asses whether the plans were realistic. The second function of this control is the motivation. If the managers of the process of innovation link motivation incentives with work results, then the latter must be accurately and objectively measured.

The process of the control of the process of innovation consists of three phases; preparation of standards and criteria; comparison of actual results with the standards and criteria; correction.

Preparation of standards and criteria. This phase shows the coonnections between functions of planning of the process of innovation and control. Standards and criteria are the specific objectives that can be measured. All standards used in the process of control must be associated with objectives and the plan of the process of innovation. Objectives that could be used as control standards must have two important characteristics: the time limit (when the work has to be done) and the particular criteria under which the degree of completion of work could be measured.

Comparison of actual outcomes with the standards and criteria. At this phase the managers of the process of innovation must determine, how deviations from the standard are dangerous. In such a manner we can obtain the assessment under which we can make decisions for further activity. The deviation level allowable for each process of innovation will be different depending on its volumes, type and other criteria. At this phase the results are measured and evaluated.

Correction. The managers of the process of innovation must choose one of three options: do nothing, eliminate deviations or adjust standards and criteria.

The point of adjustment is to clarify the reasons for deviations from standards and the course of the process of innovations would take the right direction. However, the manager of the process of innovation must be sure that the process adjustment will not cause additional problems and rectify the situation.

The following main characteristics could be applied for the control of the process of innovation:

Focus on the results. The final purpose of the control is the solution of organizational task of the process of innovation. Measurement and information about the results is only a measure for achieving the objectives. It is therefore necessary to monitor that the measures for the control would not become more important than the purposes of the innovation process.

Compliance with the process. Control must comply with the controlled process and objectively assess what is most important. Inadequate control system can hide but not gather critically valuable information about the progress of the process of innovation.

Flexibility. The control should be flexible enough and adapted to the ongoing changes.

Simplicity. Simple methods of control need less efforts, they are more economical.

Cost effectiveness. Supervision costs for the process of innovation can not exceed planned final profit.

2.3 Personnel management in the process of innovation

When forming the team for the process of innovation it is necessary to submit an image of innovation which would at least partially meet the personal needs of each individual and encourage the process of innovation. Each participant of the process of innovation needs to accept the purposes of the project of innovation as their own personal goals.

People working in groups of the process of innovation must share jobs, professions, power and responsibility. Each of them must have the operational limits and be aware of their role in the process of innovation. When mobilizing the team for the process and innovation it is necessary not just remember that each person has a different temperament, character, but also the fact that they have different approaches concerning the process of innovation.

Depending on the approach to the innovations the employees can be divided as follows:

- Enthusiasts – ignite very quickly, but soon calm down;
- Innovators – consistent setters of innovations;

- Rationalists – take actions only after careful consideration;
- Skeptics – unfavorable approach towards new ideas;
- Conservatives – proponents of the old order;
- Retrograde – have a back view of things;
- „Murderers“ of ideas – persistent opponents of new ideas.

All the above mentioned types of people, except for retrogrades and „killers“ of ideas, may be directly involved in the process of innovation, you just need to distribute them according to the type of activity. It must be the balance between skeptics and optimists towards new ideas because each extremity could be disastrous for the process of innovation.

The process of innovation is often unsuccessful not due to technical and financial but due to psychological and organizational factors. The following main reasons for the resistance towards the innovations can be identified:

- The employees psychologically are not prepared to understand changes;
- inertia, tolerance to a routine and procedures;
- fear of possible failure;
- lack of confidence in managers;
- lack of skills to work under new conditions;
- personal conflicts with initiators and implementers of innovations;
- poor planning and others.

Here are the most common strategies used for overcoming of resistance towards the implementation of innovations:

Training and information. The purpose of this strategy is as follows: to help members of organization to understand the root cause of the necessity of change.

Connection. This strategy is based on the widest possible staff involvement into the process of innovation and spreading of responsibility for successful implementation among more participants.

Encouragement. This strategy is based on continuous attention from top management as well as moral and material incentives of the participants of the process of innovation.

Negotiation and agreement. The essence of this strategy is the agreement with the members of organization, experiencing clear discomfort, concerning compensation for any inconvenience.

Obvious and hidden violence, by threatening of dismissal, salary reduction, decrease in growth prospects and etc. This strategy could be used in case of a great importance of the rate of the process of innovation, and its initiators have sufficient power. This is a very fast-acting strategy that can overcome any resistance, but at the same time very dangerous, if important participants of the process of innovation feel the hostility towards managers and organizers of the process of innovation.

2.4 Principles for the management

It should be noted that the process of innovation is more successful when it is prepared in advance and company creates an atmosphere conducive to innovations.

The following key management principles are applied when managing the team implementing the process of innovation:

Orientation to goals. The manager must ensure that his orders would not be out of touch from the main goal. In addition, it is necessary to organize work in such way that each employee should have at least a similar perception of the company's goals.

Structuring. When giving orders efforts must be made that the same person would get the tasks of a similar nature.

Distribution of tasks. The complex task must be distributed among the subordinates according to their specialization as one task can be better performed by one person and the other- by the other person.

Organizational balance. Its essence is that the process of innovation should be organized to the extent possible, and adjusted to the required extent.

Independence of individuals. Function and work is more important than an individual. You must not provide a person with work, but select such individuals that are necessary for one or other task of the process of innovation.

Motivation. Each employee must be provided with the amount of tasks which he would be able to perform in a good quality. The employee should be aware he will be encouraged, if properly carried out the task.

Control. Control must be carried out continuously, rather than at random intervals.

The manager, his skills and professionalism play a very important role for the success of the process of innovations.

The conceptual skills required for the manager of the process of innovation are as follows:

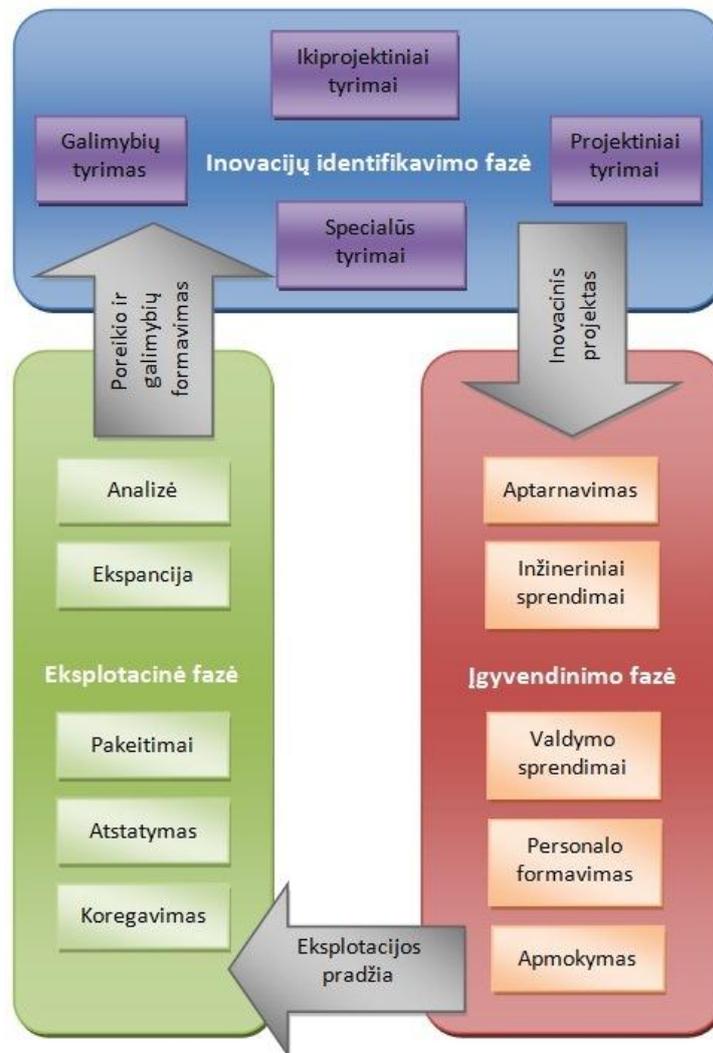
Technical skills are based on the ability to use specific knowledge, tools and procedures that are essential to successfully complete the tasks. Technical skills of the manager are the most important for all lower-level management jobs of the organization.

Communication skills are based on peoples' ability to influence one another, manage, affect employees and encourage them. The conceptual essence of the efficiency of the performance of the manager is based on the ability to use human, effective methods in the relationships with older people, as well as peers and subordinates.

Perception skills are based on personal ability to understand the overall relationship between the organization and its environment – everything that exists among the various functions and activities inside and outside the organization. Perception skills are more important to the higher management levels where most manager's activities are related to the long-term strategic outcomes.

2.5 Projection of the process of innovation and assessment of the results

A typical structure of the process of innovation can be displayed as a cyclical process (according to <http://www.inovacijos.lt>).



Ikiprojektiniai tyrimai – Pre-project study;

Aptarnavimas - Service;

Inovacijų identifikavimo fazė- Innovation discovery phase; Inžineriniai sprendimai – engineering decisions;

Galimybių tyrimas- Feasibility study; phase;

Įgyvendinimo fazė – Execution

Projektiniai tyrimai – Project study; management decision;

Valdymo sprendimai –

Specialūs tyrimai – Special study;

Personalo formavimas – staffing

preparation. One of the ways to reduce this risk is the application of a tiered structure of studies.

Therefore, it is necessary to focus on the innovation discovery phase and feasibility, pre-project and project studies. It should be noted that during all stages of the study it is necessary to maintain the same study structure. The difference should only be carried out on study details, completeness and individual works, which could not be made in the previous stages. The most complete studies are the project studies, while feasibility studies are based on a very generalized information and trends.

The feasibility study. Setting of good innovation ideas that could turn into a business projects is one of the major issue. Therefore the feasibility study shall be appointed for determination of favorable innovative ideas that must be place under further careful examination. The feasibility studies are more schematic and based on a more aggregated information. Recording of information at the stage of the feasibility study is not expensive because there is only an attempting to reveal the most important aspects of potential innovations. The purpose of this study is to assess the feasibility of innovation.

The pre-project study. The idea of the process of innovation has to be verified using much more detailed studies. But one should know that technical-economic project studies (technical-economic justification), allowing to make final decision are expensive and time-consuming. Therefore, prior to funding, the original idea should be evaluated by applying pre-project studies.

The project study. Technical, economical and commercial base intended for decision making of the project of the process of innovation is formed based on the project studies. This study helps to identify and analyze the critical moments of the selected process of innovation as well as examine their alternatives. The project studies must justify the capacity of the project as well as chosen location and technology allowing to use scheduled materials and reach scheduled production volumes, investments, costs and income ensuring adequate profits.

The special (functional) study. These studies include one or few, but certainly not all aspects of the project of the process of innovation and are required to support (supplement) pre-project and project studies, especially in large-scale innovations. These studies can be grouped as follows: market research; research for raw materials and other factors of production in relation to key needs of the project; laboratory and experimental studies in order to determine the suitability of a certain raw material; territorial studies; economic studies for production scale and etc.

The assessment of innovation projects are presented by the attitude that during the development of innovations in the company or organization new

knowledge must occur at least at the level of the economic sector in which the company or organization operates. This is clearly reflected by evaluation criteria of the projects of innovation: innovativeness, relevance for business development and the feasibility of execution and funds requirements.

Definition of evaluation criteria of the projects of innovation:

Innovativeness – novelty in respect of the existing/known technical level, relevance of the issues discussed, originality.

Relevance for business development – contribution to the national economic and technological development, economic impact of the results and exploitation prospects.

The feasibility of execution and funds requirements – the feasibility of needs, adequacy of selected methods, methodology and working plan for realization of the stated objectives, organization of management and execution, partnership, adequacy of resources.

Innovative projects in practice are the only business projects for funding of which can be attracted both private and public (state, funds and international programs) investment.

Key groups of evaluation criteria for the results of innovative projects:

- **Company objectives, strategy and value:** whether the project complies with the company strategy and long-term goals; whether the project potential justifies changes in company's strategy; whether the project is consistent with the mission of the company; whether the risk of the project is allowed with regard to the company; whether the project corresponds to the company's approach to innovation; whether the project implementation terms satisfies the company.
- **Market criteria:** whether the project satisfies the needs of the market; the market capacity evaluation; assessment of market share; assessment of production release terms; probability of commercial success; probability of implementation of scheduled sales; impact on existing products; customer approach to a new price of a product; position held in the competitive struggle; the compliance of the existing sales channels.
- **Production criteria:** new production processes; adequacy of personnel according to the quantity and qualification; conformity with the existing capacity; materials and their cost; the need for additional capacity; occupational safety.
- **Scientific-technical criteria:** whether the project conforms to the company's innovation strategy; the probability of success of the technical solution; patent cleanliness; cost and terms of implementation; the available

scientific –technical resources; impact on other projects; whether it will be able to adapt new technology and change production in the future.

- **Financial criteria:** the cost of the project; the production investments; the marketing investments; the adequacy of financial resources through the required periods of time; the impact on other projects that require financial resources; the terms of reach of the balance point and maximum negative accumulated value of the assessment of income and expenditure; the potential annual profit margin; expected profit rate; efficiency of investments.
- **External and environmental criteria:** negative environmental impact of products and technological process; public attitudes influence; current and prospective legislation; impact on the employment.