# PLANNING IN THE FIELD OF INFORMATIZATION

It is obvious that no action (other than physiological) man does not commit without planning its motives, specific implementation and its consequences. This is especially true for enterprise management, where specific actions of managers (especially senior ones) may affect not only the interests of the decision-maker, but also large groups of people and organizations. Therefore, planning (sometimes unconscious and informal) is the initial and integral part of management activities.

The main purpose of planning as a management function is to justify and develop ways to achieve the goals of the enterprise and its divisions, providing the desired level of development, both in the short and long term.

#### In accordance with this goal intra–production planning should solve five interrelated tasks:

1. Analysis of the external environment.
2. Definition of intra-production goals.
3. Analysis of resource support for the set goals.
4. Development of alternative ways to achieve goals and selection of the most rational in specific conditions.
5. Internal coordination and control.

No purposeful activity can be fully effective if it is not based on defining principles. In this case, the planning principles should determine the nature and content of planned work within the enterprise, create prerequisites for the rational distribution of powers and responsibilities, and reduce the possibility of negative planning results. Currently, there are generally accepted five basic planning principles:

1. The *principle of unity* assumes that the planning of the enterprise and its divisions should be systematic
2. The *principle of participation* means that employees of the enterprise in one way or another become a participant in the planned activities, regardless of the position and functions performed by them.
3. The *principle of continuity* implies that, on the one hand, the process of developing plans should be repeated regularly after set periods of time, and, on the other hand, the developed plans should be promptly adjusted based on the results of previous plans and taking into account changes in the external environment.
4. The *principle of flexibility* is to give the plan and the planning process itself the ability to change its direction in connection with the occurrence of unforeseen States of the external and internal environment.

The *principle of accuracy* means that plans should be specified and detailed to the extent that the internal and external conditions of the enterprise allow*.*

Implementation of the first principle assumes that intra-production planning is a system consisting of elements (objects and subjects of planning) that implement the function of planning the activities of both the enterprise as a whole and its individual divisions.

A special feature of this system is that assigned to it goals determine quantitative and qualitative composition of elements and their interaction (functions and scheme approval). At the same time, the timely and effective performance of the elements of their functions, as a rule, leads to the "automatic" achievement of the goal.

*The purpose of in-production planning.* From the point of view of the system of intra-production planning, the goal is set from the outside. This means that the goal (or goals) of the enterprise development are developed at the highest level of management (usually in the form of a requirement of the owner or the first person of the enterprise to achieve certain economic results in the long, medium and short term). Hence, the purpose of the system is to analyze the feasibility of achieving these results, to determine the most likely areas of action, to develop specific activities and to assess the level of resource provision.

*Elements of intra-production planning.* Within the framework of this system, it is fair to distinguish two groups of elements. First, these are planning objects, i.e. this is the organizational component whose activity is the subject of the planning process. From this point of view, the elements of intra-firm planning are: the enterprise as a whole; production units; functional units; jobs (positions).

Secondly, these are the subjects of planning, i.e. employees who directly carry out the planning process (in the future we will call them planners). They can be merged into an independent functional division (planning department) or be part of the planning objects.

*Functions of in-production planning*. The main function of the in-house planning system is to carry out a continuous and regular process of developing, coordinating and adjusting plans for departments and officials at different levels. However, due to the complexity and heterogeneity of the solved tasks and planning results, this single function is in practice detailed into more or less defined (stable) components of the sub-function over times (hereinafter-stages):

1. strategic planning - designed for a long period of time (3-5 years), the main task of which is to determine the most effective types of economic activity

and the direction of development of the enterprise (individual units and functional activities, for example, informatization), ensuring the achievement of the intended long-term guidelines;

1. tactical planning - details the results of the strategy within one year and makes decisions on how the resources of the enterprise should be distributed to achieve strategic goals;

operational planning - this is the planning of individual technological operations (functions) in the general management system within a year, i.e. it is the planning of production, marketing, the field of informatization, marketing, etc. up to individual jobs.

In addition, the functions of internal production planning should be detailed by type of activity, the main of which are production, financial management, planning the activities of functional units (including the field of informatization).

Consider the content of each stage of internal planning in relation to the field of informatization.

*Strategic planning* is a new method in the management system of a modern enterprise, which has emerged as a response to the increasing instability of the external environment of the business. Under such conditions, deterministic planning methods (planning based on standards and control, budget planning and even long-term planning) do not improve the enterprise management process due to often and unexpectedly occurring unpredictable situations. Ultimately, they force the company to move along some chaotic trajectory that is completely uncoordinated with the plan. This, in turn, has exacerbated the long-standing disagreement between proponents and opponents of formal planning. The latter proved that regular work on the development of plans and the subsequent attempt to accurately implement them, and even more so the organization of control over their implementation does not increase the effectiveness of the management system, but rather reduces it, because additional resources are required for planning and maintenance plans. In addition, the system becomes less flexible due to its high determinism. Unfortunately, this opinion has been widely spread in the business community since the end of the 20th century in Russia. To date, the positive experience accumulated earlier (in the era of the planned distribution economy) of conducting planned work at the then state-owned enterprises is largely lost, and new methods of internal production planning are still being tested. At the same time, the leaders of progressive Russian enterprises have already realized the urgent need to conduct systematic work and, in particular, taking into account the already noted high instability of the external environment, the use of

new (for Russian business) methods, which, above all, include strategic planning.

The main difference between the methods of strategic planning from all previously used is as follows:

1. the planned work is aimed at the future, and does not describe the current situation;
2. the strategic plan is not deterministic, i.e. it does not have strict regulations on resources, performers and terms, it justifies the general perspective directions of development (activity) of the enterprise;
3. there is no assumption in the strategic planning system that the future can be predicted based on the results achieved in the past.

In this regard, the general methodology of strategic planning includes an analysis of various aspects that have occurred in the past and are likely to be relevant in the future. In general, it consists of a series of sequential steps:

1. Analysis of past trends. It is necessary in order to objectively assess the current state of the enterprise (individual divisions and functional activities, for example, Informatization) as an economic object and, most importantly, to predict "what will happen next if nothing is done". In General, the results of the analysis will show the presence of one of three alternative trends of the current state: constant positive growth of economic results; long-term stagnation; constant degradation. However, none of the identified trends can be the only basis for predicting the future. They should be a link in a complex chain of analysis of strategic prospects.
2. Analysis of external prospects of the enterprise. The main task is to find out the external and internal dangers and chances, as well as possible "exceptional" situations that can qualitatively change past trends. This analysis allows you to predict the future to keep the economic results "within sight" of the management subsystem of the enterprise.
3. Analysis of positions in the competition. Its purpose is to assess the limits of improving the economic performance of the enterprise as a result of increasing the level of competitiveness in general and in the activities in which it is engaged.

The choice of strategy of behavior. Here we compare the prospects of the enterprise within the developed activities. This is necessary in order to set priorities for further development and, as a result, to allocate resources between different activities.

At this point, the analysis can be completed and management moves to the preparation of long-term programs, plans and budgets. However, in many cases, the existing set of activities does not provide a strong basis for confidence in achieving long-term goals, either because it does not provide sufficient growth rates, or because it is strategically vulnerable (there is a high probability that the structure of needs will change in the future), or for other reasons. In such cases, one more step is required.

1. Analysis of ways of diversification. The essence of this step is to assess the shortcomings of the set of activities supported by the enterprise and identify new, promising, which should be moved to (connect to the existing set).

As a result, the company defines a strategy of behavior, i.e. defines new goals, tasks and directions of development in the predicted future.

The general methodology of strategic planning in general and, in particular, the sphere of informatization.

Formation and development at the enterprise of the sphere of informatization intended for ensuring statement and support of decision-making in system of the general management always demanded long-term planning in the field of the organization, development and use of IT and IS. Due to their high importance in terms of maintaining the proper level of competitiveness of the enterprise, it is advisable to use the methodology and methods of strategic planning for these purposes. In addition, the following arguments can be made in favor of strategic planning in the field of informatization at the enterprise:

* The dynamics of the market for elements of the technological environment requires constant analysis of additional opportunities and threats posed by new IT;
* continuous improvement of the price / performance ratio across all IT components expands the scope of their application and in order to fully use their capabilities, the process of implementing new technologies should be planned on a strategic basis
* expanding the range of use of information services and products in the enterprise leads to an increase in the required investments, which also requires appropriate strategic management;
* the creation, use and development of almost all IT and IS has been going on for a rather long time and requires significant material and financial resources, which certainly needs detailed planning in both time and resource sections, taking into account general corporate strategic priorities;
* many decisions in the field of informatization are strategic in nature (for example, decisions related to the creation and long-term use of data banks and / or computer networks).

*Strategic planning* for the field informatization, in principle, does not differ from the generally accepted methodology. Hence, the global goal of the field of informatization in the enterprise, as well as other functional activities (marketing, finance, etc.) is to provide the greatest possible contribution to the achievement of the overall goals of the organization through the use of modern information technologies.

In accordance with this, strategic planning in the field of informatization should be perceived as an integrated part of the overall corporate strategic management in the enterprise. Therefore, it should be implemented on a system- wide platform and include a number of sequential steps.

1. Analysis of the external environment. At this stage decisions are made on the following key issues:

 development of the General program of development of the sphere of informatization at the enterprise on all key points (level of distribution, equipment, software, means of telecommunication, personnel and others

 assessment of new opportunities and risks in connection with the development of the field of informatization under this program;

 assessment of innovation opportunities in the enterprise as a whole in connection with the development of IT and IP;

 criteria for the implementation of the adopted program of development of the sphere of Informatization (terms, volume of implemented tasks, etc.);  analysis of legal and market restrictions in the implementation of the

development program;

 analysis of the interests of business owners and other stakeholders (suppliers, consumers, etc.);

 possibility of integration with external information systems (tax authorities, cooperative enterprises, etc.).

In fact, this stage is a process of setting tasks in the field of strategic planning of the sphere of Informatization.

1. Analysis of internal potential. The general task is to identify the strengths and weaknesses of the existing enterprise sphere of informatization. For this purpose all available information systems and all resources involved by the beginning of the analysis are specified for the following aggregated blocks:

 characteristics of databases and information technologies available at the enterprise;

 analysis of resources used in the field of information processing (technical and software tools, personnel of informatization units, budget of the information processing sphere);

 description of the structure and assessment of the quality of information management in the enterprise.

In fact, it is an inventory of all available technological, economic and managerial resources.

1. Strategy development. This is the final stage of strategic planning, which results in the development of a strategy:

 in the field of data and application architecture;

 in the area of composition, quality and volume of required resources;  in matters of organization and management of the enterprise

informatization sphere.

Due to the high importance and multi-variant nature of the decisions taken at this stage of it strategy development, it will be discussed in more detail in a separate chapter.

The implementation of decisions obtained in the process of strategic planning begins with the development of specific activities designed for shorter periods of time.

***Tactical planning*** is designed to develop ways to implement strategic objectives within one year. In this regard, the main goal of tactical planning is to determine:

1. what exactly needs to be done in the planned year, i.e. the list of works on Informatization of the enterprise and separate divisions;
2. what resources are needed to implement the plan, and what resources the company actually has;
3. what financial resources are needed for the implementation of the current plan to the units of informatization and the enterprise as a whole;
4. what results should be achieved in the planned year (implementation of new IT and IS, modernization of components of the technological environment, etc.);

tools.

1. what marketing actions should be taken in the market of computerization

The process of tactical planning should begin at the level of units responsible

for the field of information, as well as units-consumers of their services. The results obtained should be accumulated, analyzed and adjusted at the enterprise level as a whole.

#### In general, there may be two types of tactical plans:

* 1. Annual plans of work in the field of Informatization of individual divisions and the enterprise as a whole;
	2. The annual innovation plans.

#### The first type of plan is always developed. They include:

1. at the unit level: a work plan for informatization and the provision of services; logistics plan; staff plan;
2. at the enterprise level as a whole: consolidated plans of informatization units and consumer units of their services in a similar structure; marketing plan; financial plan; environmental, social, etc.

**The second type of plans** is a set of independent investment business plans for each new project in the field of IT and IS.

A feature of any tactical plans (first and second types) is the mandatory availability of the most accurate assessment of financial resources and financial results. The latter may arise when implementing information services "on the side" and/or from the sale of original developments. In this regard, in the annual plan of the enterprise the section "Financial planning" is allocated in independent where current financial expenses and receipts, and also expenses and expected incomes from innovative projects are brought together.

Operational planning defines and regulates the work performed within one year. Depending on the complexity and complexity of the work, one working day, a week, a month, and, in some cases, a quarter can be taken as a planning period. According to the composition of the work, operational plans usually determine the current operation and maintenance of the IP and individual technological components of the information-processing sphere.

#### Organization of the sphere of Informatization

The basis of effective work of any modern enterprise is a rational division of labor. In General, there are two types of such separation:

1. Horizontal - this is the decomposition of the overall work to obtain the final product (intended result) into meaningful components and assigning them to individual employees and / or organizational structures (units);
2. Vertical - is the coordination of activities of organizationally separate employees and departments in order to obtain the final product (intended result).

Hence, the organization as a management function is designed to solve two main problems. The first is the determination of the permissible level of horizontal division of labor. As a result, fairly separate groups of workers with clearly defined boundaries of functional (production) responsibilities and authorities are distinguished. The second task is the formation of the organizational structure of the enterprise. The methodology of structuring consists in establishing vertical and horizontal relationships between separate groups of workers by substantiating the relationships of subordination and functional relationships.

Then, organization (as a management function) is a process of delimiting powers and responsibilities between elements of a socio-economic system and, on this basis, their structuring.

With regard to information management, the totality of authority and organizational responsibility is determined, first of all, by the stage of the life cycle of the sphere of informatization in an enterprise. So, according to one of the classifications, the following typical stages of the process of implementing information-processing systems are distinguished.

*Initiation.* The company is forced to process such a current amount of information in which the use of computers is justified. However, direct users are rather reserved about automated information processing. Therefore, the authority that initiated them (this may be the first head of the enterprise and / or a group of enthusiasts) manages the work on informatization.

*Spread.* The demand for computer services from users is growing rapidly. The number and variety of equipment and maintenance personnel in the field of information processing is increasing and, as a result, the budget of this sphere is growing. Specialized groups of workers engaged in the maintenance of computer systems are being formed. However, planning and control in the field of using informatization tools is practically absent.

*Control and management*. Implemented cost management methods in the field of information processing. Strengthening the position of planning, standardization and control. In the structure of enterprise management, an informatization service is allocated.

*Integration.* All new IT and IS are being introduced and combined. Systems for planning and controlling the use of information resources are being improved. There are problems of centralization / decentralization of computing facilities and resources. The staff of the enterprise fully adapted to the automated processing of information.

*Data Orientation.* Information is considered as an independent resource of the enterprise, requiring appropriate management. IT and data integration

continues. Production units begin to take responsibility for the use of information processing resources.

*Maturity.* The field of informatization is fully consistent with the tasks of regular management up to information support for the development and implementation of enterprise strategies.

Based on the definition of organization as a management function, along with the stage of the life cycle of operating information processing systems, the level of division of labor achieved in them plays an important role in the field of information. The specificity is that it is necessary to make a choice between specialists with a wide or narrow profile. "Universal" can carry out all existing and expected future tasks in the field of information processing, but their work is "very expensive". ―Narrow specialists‖ perform high-quality work of a certain profile, but cannot be used equally effectively when performing work that is unusual for their qualifications and, often, there are problems with their full load. Therefore, in each specific situation, you have to make some kind of intermediate decision. The following signs of the division of labor are characteristic of the sphere of information processing:

* degree of division of labor (broad-based specialist, narrow specialist);
* classes of tasks (applied, system, etc.);
* subject and/or technological field (specialist in accounting IP, CAD systems, etc.);
* data management (data administrator, network administrator).

In conditions of a significant expansion of functions and depending on the size of the informatization division, an even narrower specialization is possible, for example, a marketing planner or a specialist in collecting and processing marketing information.

A significant influence on the structuring of the sphere of information processing has the degree of its decentralization. There are the following types of decentralization:

* spatial-determines the location of individual technical complexes where information is processed;
* technological – covers the levels of isolation of hardware and networks, distributed software products, distributed data;
* organizational – is the distribution of tasks for processing information and responsibility for the results of their solutions.

The choice of the degree of decentralization may be determined by the following considerations. A high degree of centralization makes it easier:

а) the process of preparing information for management and conducting analytical activities in the field of management;

1. alignment with global for the enterprise as a whole applications, as well as external IS and databases;
2. acquisition and application of more advanced elements of the technological environment and integration of innovative solutions in the field of information processing.

There are also significant arguments in favor of deep decentralization:

а) it does not require significant efforts and funds to ensure the security of systems, and also reduces the risks, including the total destruction of the entire sphere of enterprise informatization;

б) the response time to the changed local situation is reduced and organizational losses due to inconsistency of actions between separate subsystems are reduced;

вincreasing the interest of departments in obtaining results through the use of IT and IS, as well as increasing their responsibility for the operation of information resources.

Taking into account the "pros and cons", it is advisable to focus in some Central subsystem of the strategic management functions in the information processing system, as well as issues of innovation and standardization. Then all other tasks of operation and management can be transferred to lower levels up to separate automated workplaces.

The above-analyzed features of the organization in the field of information processing (the reached stage of the life cycle, the accepted level of division of labor and decentralization) have an impact on its structuring. Depending on the scale of Informatization, a variety of organizational structures can be formed at a particular enterprise: up to five people-small, 6-20 people – medium, more than 20 people-large divisions. Figure 1-3 shows examples of structural schemes of the Informatization service for various scales of activity (5 people-small, 6-20 people- medium, more than 20 people-large units).

To streamline the processing of information must clearly match the organization's core business. The generally accepted basis for solving practical problems of the organization is to follow a structural approach. Note that if you change the structure of the core business may change significantly and the structure of the internal organization of the region information and that, at the present time, the information processing system in the company structure occupies an increasingly significant place.

The internal organization of the field of information processing until recent years was primarily subordinated to the solution of internal problems of creation, development, maintenance and operation of IS. However, technical and technological decentralization, the emergence of standard automated workplaces and powerful standard problem-oriented application packages have led to the emergence of large-scale tasks in the field of information processing, user consulting and IS support, which require significant skills. These new challenges have led to the emergence of a new model specific organizational unit in the world practice of IS organization – the information center, whose main functions are the development, maintenance and operation of IS.

Operation of computing technology

Selection and adaptation of standard software

Management and information processing

Fig.5.1.The structure of the small division

Management and information processing

Commissioning of software and other information tools. End-user service

Application development and maintenance

System development and maintenance

Data storage

Preparation and execution of computing works

Computing work

Fig.5.2. Structure of the middle division

Computing center

Department of basic technological means

Information center

Department of application systems design

Department of the organization

Headquarters

Management

Fig.5.3. Structure o f a large division

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Organizational changes, if any, should naturally be explained to all direct participants, even if the changes are to be implemented in the enterprise as a whole. These activities are usually implemented at the operational level. The organizational changes themselves in the enterprise as a process should be accompanied by appropriate organizational measures (for example, the creation of a Commission for a certain time to manage this process, measures for training employees, etc.).