

Environmental Management in Condition of Stable Development and Efficient Use of Resources

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Abstract. In the article there is the necessity of strategic management as a new conception of management in the conditions of environment unstable and dynamic is established, the aspects of strategic management theoretical and methodological are considered as a new perspective direction to the management in the conditions of unstable external environment. The article provides theoretical and methodological recommendations for the development of a model of a strategic management system for an enterprise, its resources and a design algorithm in different periods in an unstable market environment. Nowadays, it is of primary importance to develop innovative technological processes that could provide the foundation for waste-free green production with high engineering and economic indices and integrated resource use.

1. Introduction

The research is aimed at substantiating principles of green production and sustainable resource use in the enterprise's industrial and economic activity.

Modern interpretation of current environmental issues requires an innovative approach as environmentalization (green production) of economy has resulted from changes in people's worldviews, multiple and controversial market transformations, reconsideration of state, social, political and economic priorities in the country's development. The global environmental crisis, inefficient use of internal and external natural resources have caused acute environmental and economic problems of industrial enterprises. The industrial sphere is the most essential factor of the technogenic influence on the environment. That is why interrelation of economic development and economic security is attracting attention nowadays. Environmental and economic issues in enterprises' activity influence on the environment through systematic emissions and waste accumulation can be defined as a conflict between the global character of the environmental crisis and imperfection of existing technologies and mechanisms of maintaining enterprises' environmental security.

Considering this, the environmental security problem should be solved by involving individual industrial enterprises that are to be considered as an initial stage of green production which envisages



constant recreation of scientific ideas, information materials, technical means and engineering solutions to provide a mechanism of efficient resource use and green production conditions [1]. Nowadays, it is of primary importance to develop innovative technological processes that could provide the foundation for waste-free green production with high engineering and economic indices and integrated resource use. Because of some technical and economic reasons, it is impossible to transit to waste-free technology immediately. Green production technologies imply step-by-step transition to low-waste and then waste-free closed-loop cycles. Only in this way, the goals of sustainable resource use and environmental protection can be achieved.

2. Results

Researchers have proven that one of conditions for creating a waste-free industrial complex is combination of technologies that enables complete utilization of all components of raw materials and consumption of wastes of one product type to produce another type to finally eliminate all waste materials inside the enterprise [2]. The activity to prevent contamination aims to eliminate or undermine waste sources without using end-of-pipe technologies [3].

Mechanisms of economic regulation finance and state support can be referred to those of modern green production (figure 1).

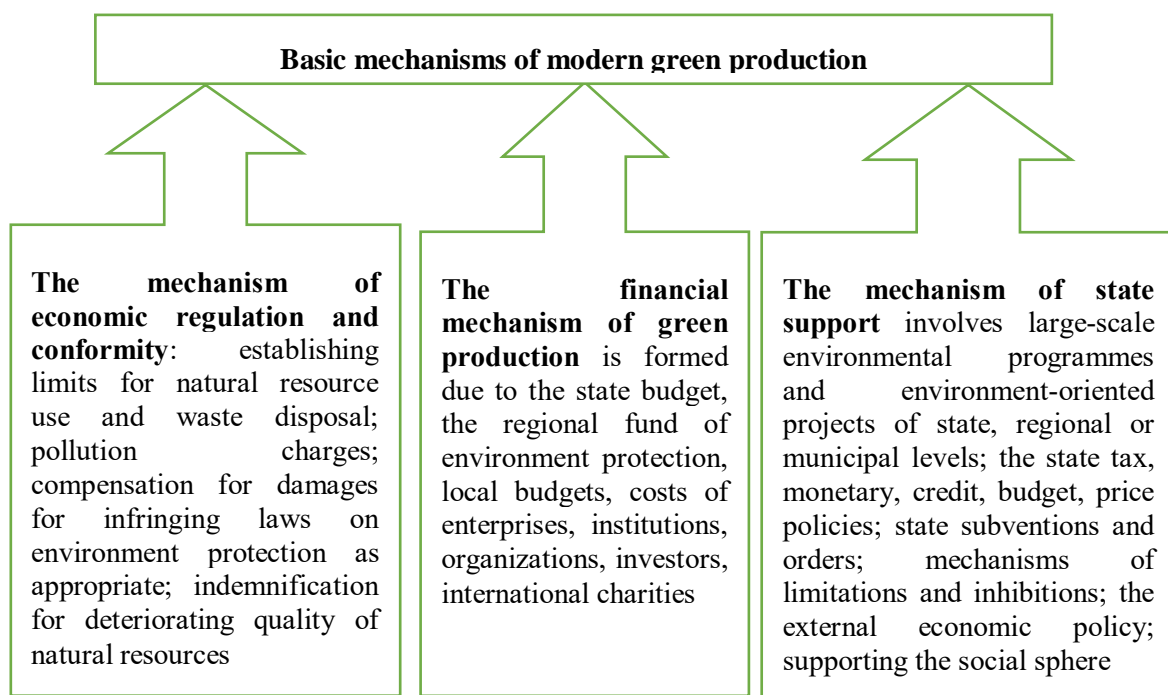


Figure 1. Mechanisms of modern green production

The variety of forms of environmental and economic mechanism tools creates a vast range of opportunities for purposeful environment-oriented influence on entities' economic interests. These opportunities combined with other management methods enable effective solutions to complicated environmental and economic problems within the market economic system (figure 2).

The following principles form the basis of green production: systematic and integrated character of processes; prevention of sartorial vested interests; efficient location of production and concentration of productive forces considering environmental problems; the territorial-logic approach; consideration of regions' economic and social issues, the level of resource potential use; in-depth study of possible changes affecting people's health and living conditions; scientific quality of green production,

environmental examination of projects and arrangement of substantiated forms of green production [4].

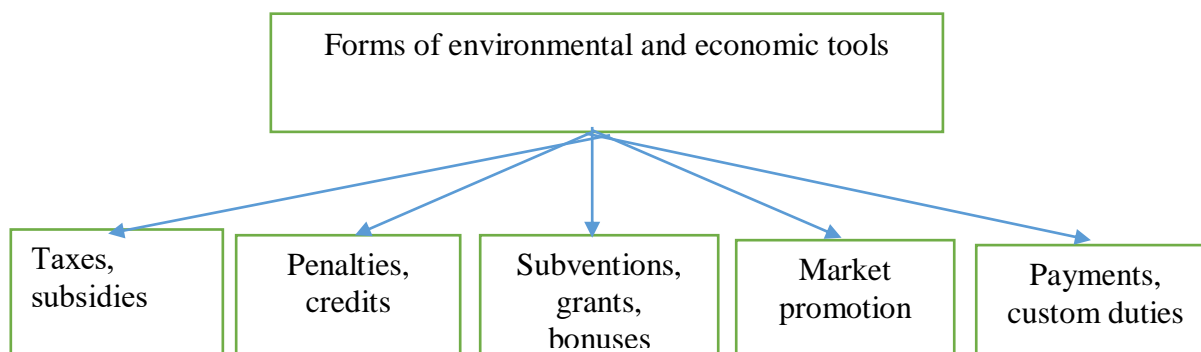


Figure 2. Forms of environmental and economic tools

Thus, advantages obtained by industrial enterprises due to effective introduction of environmental measures and mechanisms of green production include reduction of wastes (emissions); decreased resource-intensity of production; improved environmental security; reduced risks for personnel's health; improved working conditions; enhanced attractiveness of labour for young people; facilitation of the enterprise's environmental image, creation of favourable public opinion; reduced expenditures for raw materials, power, fuel and water; reduced expenditures for treating sewage waters, dust- and gas-like emissions, waste utilization; reduced environmental charges and penalties; increased prices for products due to their improved quality; income growth and general efficiency of production.

Modern industrial enterprises' activity should be aimed at preventing waste generation prior to the stage of product/substance decomposition. This step is to reduce quantity of wastes, enhance green production and reduce unfavorable impacts of generated wastes on the environment and people's health. Such economic tools as encouragement of waste-free technology, establishment of obligatory charges for certain items or package elements can be applied. 2008/98/EU Wastes Directive is the basic one in waste management to be introduced by Ukraine according to the EU Association Agreement. The directive envisages the following priorities: prevention of waste generation, preparation for reuse; recycling; another recycling type, e.g. for renewable energy; disposal [5]

Funding low-waste enterprises or recycling enterprises is a promising trend. Yet, there arises a problem of economic efficiency of such projects. Recycling enterprises reach their economic efficiency after a while, as introduction of the recycling complex and its maintenance require significant investments. On the other hand, waste recycling technology is a potential reserve to increase efficiency of public production and reduce environmental loads. Ukrainian enterprises often execute their environmental duties formally because of poor state support and absence of methods to encourage safe economic activity. Dishonest attitudes to problems of green production are caused by obsolete technology, high energy- and material-intensity of products; absence of due control over environment protection; high rates of moral and physical wear of basic tools/facilities; inactive mechanisms of encouraging resource-saving development of enterprises [6].

Extraction of useful minerals from wastes enables saving of primary resources and reduction of destructive impacts on the environment. From the environmental viewpoint, it is essential not only to reduce quantity of waste materials, but also recycle them for further economic use [7].

Considering European practices, it is worth mentioning that Poland's law requires an obligatory waste move report designated for an enterprise generating was tesinaset of three as it is responsible for fur there waste disposal. If the waste-generator finds out that a recycling enterprise neither provides safe waste disposal, nor recycles it or in case of any suspicions, the relevant data are submitted to the prosecutor's office and supervisors.

In Ukraine, the amount of accumulated wastes reaches 15-20 billion dm³. Gold, silver, platinum, vanadium, titanium, mercury, zinc, etc. can be extracted from waste materials. Ukrainian small

businesses are mostly engaged in waste recycling. Since 2017, licensing has been provided for domestic waste recycling [8]. Licensing for working with hazardous wastes is necessary for activities aimed to collect and recycle wastes that are hazardous or potentially hazardous [9].

At the present-day stage of developing market relations, under unstable economic conditions, strategic management can become an effective tool of an enterprise's long-term development in any industry, ensuring solution of economic problems with maximum economic efficiency.

The term strategic management was introduced in the late 1960s to reveal the relevance of an enterprise's current managerial activity to that in the long-term period. In the early 1970s, after generalizing Alfred Chandler's theoretical preconditions, the American scholar Igor Ansoff formulated the concept of strategic management, defined it through analyzing current data and trends in the external environment development (e.g. an enterprise in competitive conditions), and formulated goals of an enterprise's long-term development [10]. Ansoff defined a strategy as a set of rules to make decisions to be guided by an enterprise in its activity in future.

There are four groups of such rules:

- those used to assess results of an enterprise's present-day activity and those in the future;
- those determining an enterprise's relations with its external environment including its products and technologies, sales markets, and ways to achieve competitive advantages;
- those determining an enterprise's internal relations and procedures – managerial concepts; and
- every-day rules controlling an enterprise's activity or its basic operating techniques.

With that, elaboration of long-term principles of decision making and substantiating is essential to determine strategic efficiency of an enterprise's functioning.

Strategic management is a complex concept containing a strategic aspect, long-term planning, and control over strategy implementation. Some papers consider operating management of implementing strategic plans as a subsystem of strategic management.

The research aims to provide theoretical and methodological recommendations for developing a model of the strategic management system of an enterprise, its resources and a design algorithm in various periods under unstable market conditions.

The research aim determines the necessity of solving a number of tasks: investigation into traditional interpretations of an enterprise's strategy; development of an algorithm controlling all kinds of resources by using methods of strategy formation and implementation.

The Strategic management provides the foundation for introducing the control system over an enterprise's activity in the long run. Ongoing changes of the external and internal environment are essential while enhancing strategic management. There are many variants of definitions of strategic management that highlight various aspects of this complicated managerial process. S.B. Dovbnia, M.M. Smirnov, Z.E. Shershniova, D. Pearce, A. Rose, R. Robinson, I. Ansoff, E. Cheff investigated into strategic management.

The well-known approach defines strategic management as a process of decision making that combines internal managerial potentials with threats and favourable opportunities from the external environment [11]; the process of control [12]. V.H. Herasymchuk [13] and M.M. Smirnov [14] also support the mentioned approach accentuating provision of compliance of an enterprise's environment to its development.

According to the target-oriented approach, strategic development is a set of tasks, achievement of which helps an enterprise maintain its position on the market in the long run. The representatives of this approach are J.A. Pearce and R.B. Robinson [15], W. Gluck, L.Jauh, A.A. Thompson, and A.J. Strickland [16], who interpret strategic management as a set of solutions and actions (an enterprise's management plan) to formulate and implement effective strategies aimed at achieving an enterprise's goal.

The essence of a strategy is expressed in the following. A strategy determines basic trends of an enterprise's development and ways of achieving its goals. A strategy is a method of establishing interaction between an enterprise and the external environment. A strategy is based on generalized, incomplete and inaccurate data. A strategy is constantly corrected and this is facilitated by a well-

arranged monitoring system. A strategy is the basis for developing strategic plans, projects and programmes, which reflect trends and tools of an enterprise's development. A strategy is the basis for forming and implementing changes in an enterprise's managerial structure [17].

Strategic management is a multidisciplinary, managerial process which helps formulate and implement effective strategies to enhance relations between an organization and the external environment as well as achieve set goals [13].

Under the stability approach, the scholars characterize an enterprise's ability to preserve stability and balance (O. Baranovskyi, M. Kamlyk, etc.). The evolution approach helps determine factors of changing the environment where the basic driver of an enterprise's progress and change is interrelation of an enterprise and its environment. The enterprise changes to survive in the changing environment, while the latter changes due to an enterprise's activity (V. Zabrodskyi, N. Kapustin, M. Zubok, S. Shkarlet, etc.). The resource approach provides for the most efficient use of an enterprise's resources (L. Honcharenko, O. Hrunin, S. Hrunin, M. Koroliov, Ye. Oleinikov, V. Senchahov, A. Sudoplatov, S. Lekerev, M. Fomina, etc.). The competitive approach accentuates competitive advantages (V. Belokurov, etc.). The harmonization approach highlights harmonization of an enterprise's interests with those of the external environment (V. Ponomariov, O. Liashenko, etc.). In spite of differences of the approaches, their evolutionary feature is common, as in case of threats and risks, an enterprise has to learn constantly and improve its own protective mechanisms. If internal threats are levelled due to self-organization of the system, it takes a lot of efforts to minimize negative impacts of the external environment. That is why; there appears a necessity to create models of strategic management.

A great variety of interpretations of strategic management models and approaches to their formulation has something in common. The models are composed of certain stages that form an action algorithm. The models are to contain elements of goal-formation, strategic analysis and control (a feedback). Application of models results in relevant strategies or strategic decisions.

In our opinion, the modern model of strategic management is a constantly functioning system of interrelated elements, processes, action algorithms of an enterprise aimed at enhancing its dynamic state and achieving its set goals in due time. In the unstable economic environment, the rate of the enterprise structure adjustment to market conditions, timely developed and introduced tools of achieving the intended level of development are essential.

Strategic management is implementation of its concept combining the target-oriented and the integral approaches applied to an enterprise's activity. This enables determination of an enterprise's goals and objectives, their comparison with relevant opportunities and provision of their compliance by designing a system of appropriate strategies (a strategic complex). The strategic management system includes the following elements: a management mechanism, a management object, management functions, a managerial structure, managers and a management process. In its turn, a mechanism is a set of goals, principles, methods, techniques, forms and stimuli of management, and their mutual influence that ensure an enterprise's effective development. High-quality of the management mechanism and its relevance to the laws of social development and strategic management primarily depend on managers' professional skills necessary for their formation and motivation to elaborate future strategic steps.

In the rapidly changing market environment and under severe competitive conditions, there is no single management method to provide an individual enterprise with fast adaptation tools as its state depends on multiple factors, namely: an enterprise's industrial potential, demand for products, rivals' behaviour, a general economic situation, etc. For this reason, each enterprise has to develop its own strategy of survival and development on the basis of general principles of strategic development.

E.E. Chaffee suggested general characteristics of strategic management as a system based upon distinguishing its main features, namely: involving adaptation of an enterprise to its business environment; being changeable and complex, with changes creating new combinations of circumstances which require some unique responses; influencing the entire company by defining its directions of development; comprising strategy formation (content) as well as strategy implementation (process); being partly planned and partly spontaneous; being implemented at several levels (corporate

strategy and individual business strategies); containing both conceptual and analytical mental processes.

Having considered all the mentioned features of the strategic management system, it is possible to conclude that the main goal of such management is to make decisions that can provide survival and success of a company under changing conditions of significant complexity and ambiguity of the competitive environment. R.F. Brukhansky notes that strategic management is both a phenomenon and a process as it presupposes formation of an enterprise's strategy (content) and its implementation (process). Strategic management is a set of managerial actions with look-ahead characteristics able to not only react to changes in the external environment, but also affect it. According to this approach, a company's external environment is a field of controllable strategic changes carried out during implementation of a strategy. Therefore, this approach to enterprise management is rational and should be considered as a constant evaluative and managerial process of a company [18].

The major factors of market environment instability include unexpected changes on the market, new technologies, competitors' advantages, impacts of society and politics on an enterprise's behaviour, limitation of resources, formation of new goals of the state economic policy, and economic globalisation processes.

Fundamentals and developments of the strategic management concept are described in many researches. Schendel and Hattch characterise strategic management as a process of determining and establishing relations between a company and its environment through achieving set objectives and improving relations with the environment by allocating resources, this enabling an efficient and productive operation of a company and its departments.

Koin and Subramanyam believe that the strategic management concept defined as an ability to keep a chosen track, has transformed into a process of active consistent management of strategy development depending on changes of industry-related conditions [19].

We believe that strategic management of an enterprise should be sustained, flexible, goal-oriented and efficient. Consistency of strategic management means that this system impacts an enterprise in a way that it evolves securing its long-run operation. Target-orientation directs an enterprise towards creation and reasoning of its mission and objectives. Flexibility of strategic management involves in-time and adequate adaptation of an enterprise to changes resulting in carving out its niche in the external environment. Strategic management is said to be cyclic, with constant repetition of stages of an enterprise's transformation from the actual state into the desirable one, and changes of external environment parameters. Efficiency of the strategic management system implies the achievement of certain results and assessment of the extent to which the criteria set for individual objectives and strategies are implemented [20].

Figure 3 shows a model of enterprise strategic management, which includes operational and strategic analysis of its components. The first stage of strategic management involves consideration of a strategic picture of the internal and external environment being an essential in-time diagnostics defining the key criteria, concentration on the process of greening the enterprise, consolidating the conditions for low-waste production. At the second stage, it is suggested to diagnose an enterprise, state a real picture, define the conditions under which an enterprise has a stable state on the market, and make scenarios - neutral and unstable. Depending on an enterprise's market stability, its mission is defined; an objective tree for achieving set tasks is originated, after that further steps are planned and a decision tree is suggested. A mechanism of strategy implementation is developed at the third stage. It includes projects, development programmes, development scenarios, as well as tactic, strategic and operational planning which uses implementation tools, transition of the enterprise from the waste-free stage of greening. Based upon the above-mentioned aspects, the following model of enterprise's strategic management is suggested [21].

Thus, modern scholars describe strategic management as a rapid response to external environment changes; a strategic plan supported by facts and forecasts; anticipation of decision results affecting the situation by resource allocation and efficient relationship establishment, and personnel's strategic behavior formation; development of adequate strategic methods and models; application of developed

strategic management systems; formation of strategic thinking of enterprise personnel to realize its development strategy.

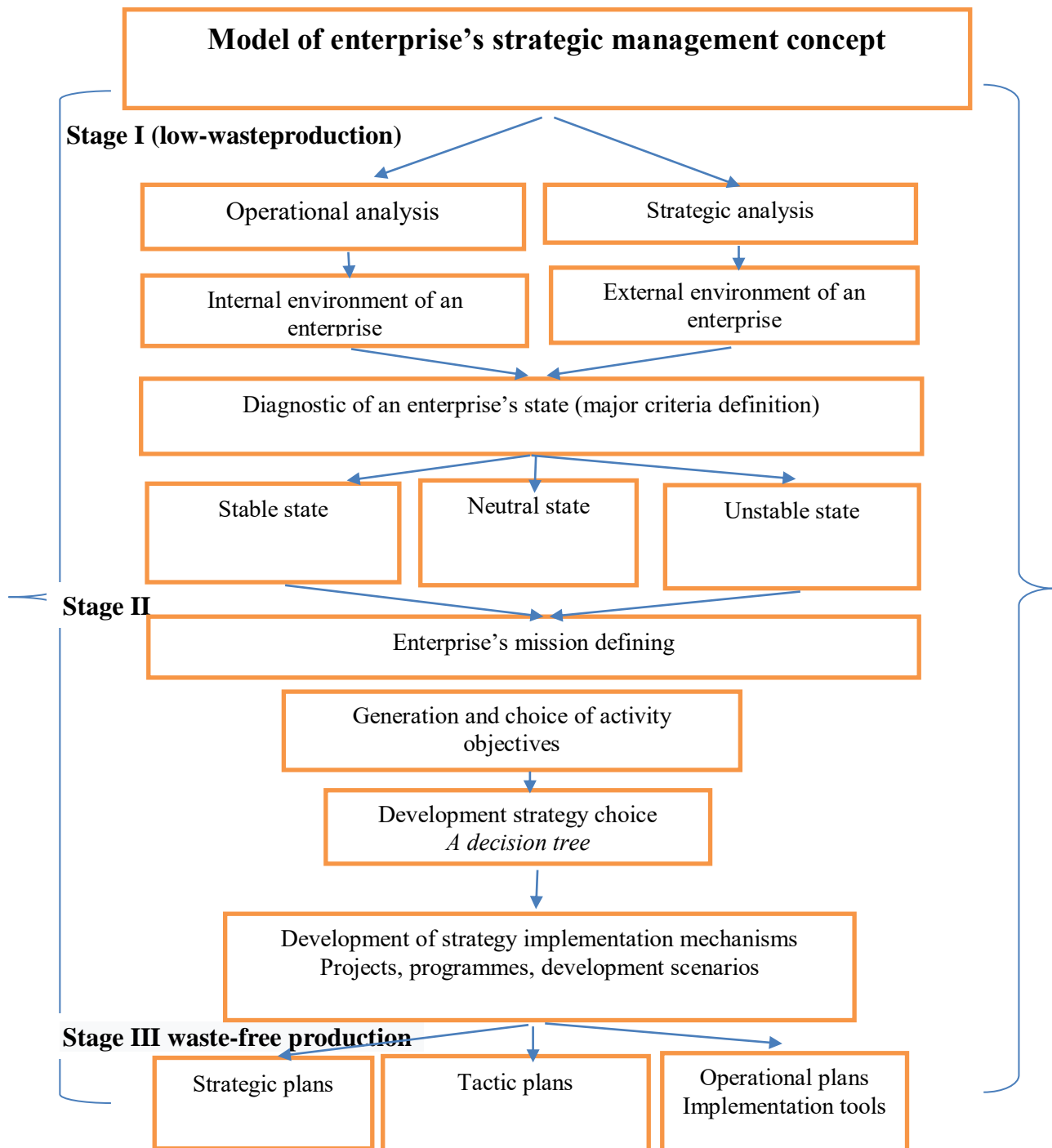


Figure 3. Model of enterprise strategic management

Consideration of the peculiarities listed above will enable an enterprise's managers to outline its mission and development strategy clearly and according to market conditions.

The peculiar feature of the strategic management concept is its principle of interdependence of the external and internal environment to be considered while setting enterprise objectives. This model implies a consistent combination of management theories even though an enterprise is thought to be an

open social and economic system where adequate strategic management systems complying with present market conditions are formed. These systems differ from one another depending on an enterprise's peculiarities and external environment characteristics. It is also required to collect and use strategic databases, and apply the information to making strategic decisions to determine the content and succession of actions regarding changes at an enterprise [22]. The model involves application of certain tools and methods of enterprise development, namely an objective tree, strategies, a strategic set, strategic plans, projects and programmes, strategic planning and control, etc.

3. Conclusions

Having considered the above-mentioned aspects, the strategic management concept can be described by the following key features: a rapid response to external environment changes; a strategic plan supported by studies; determination of several scenarios for enterprise development; anticipation of decision making results affecting the situation by resource allocation and efficient relationship establishment, and personnel's strategic behaviour formation; development of adequate strategic methods and models; application of developed strategic management systems. During strategic planning, it is essential to change strategic thinking of enterprise personnel to realize its development strategy. Consideration of the peculiarities listed above will enable managers to outline an enterprise's mission and development strategy clearly considering market conditions. The essence of the strategic management concept is its principle of interdependence of the external and internal environment to be considered while setting objectives at each stage of an enterprise's development. In such cases, strategies are tools for creating a database aimed at enhancing key objective achievement under changeable economic conditions.

Based on the foregoing, the concept of "strategic management" has determined its main features: ensuring a quick response of the enterprise to changes in the external environment; reinforcement of the strategic research plan, identification of several scenarios for the development of the enterprise, forecasting the consequences of decisions, increasing the level of greening the enterprise, its gradual transition to the stage of "waste less". Influencing the situation with the appropriate economic distribution of resources, the establishment of effective relationships and the formation of strategic behavior of personnel; development of appropriate strategic methods and models; Using developed systems of strategic management, the management system solves a complex of tasks from economic to environmental, forms the strategic thinking of personnel, the corporate vision of an "ecological enterprise". Taking into account these features will allow the management of the enterprise to correctly and in accordance with market conditions determine the mission and strategy of its development. The essence of the concept of strategic management is the theory of the need to take into account the relationship and mutual influence of the external and internal environment, the greening of the enterprise in determining the goals of the enterprise at each stage of development. In this case, strategies manifest themselves as tools that must create an information base to achieve the main goals, be environmentally friendly and competitive in a changing economic environment.

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