KNOWLEDGE SYSTEM MODEL FOR ENTERPRISE DEVELOPMENT MANAGEMENT

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Abstract: *Based on a generalization of some basic contents of system theory, viewing organizations and businesses as a social system comprising numerous subsystems with different roles and functions, researched by various social sciences and humanities, this article proposes a model of scientific knowledge (science) on enterprise development management. This scientific knowledge model integrates approaches to development management at the general organizational level, the level of main subsystems, and the level of individual elements related to functional areas of operation. Contrary to popular approaches that consider changes at the level of the entire organizational system or its individual subsystems and components, this model allows us to view the process of managing enterprise development as a set of activities unified by a common goal that influences every aspect of business life and operations.*

Keywords: *Organic system, social system, management, management science, development management, enterprise.*

1. Introduction

One of the significant modern scientific and methodological issues related to management science is the integration of interdisciplinary knowledge to address practical problems. The theory of enterprise development management nowadays includes various approaches that consider changes at the level of the entire organizational system or its subsystems and individual components. Currently, there is a lack of theoretical consensus among different concepts/conceptions of development management and the mechanisms of managing enterprise development in general, necessitating a deeper examination of scientific approaches to management and the methods of managing enterprise development.

To address this issue, we will summarize some main contents of the system theory; then, propose integrating principal approaches to manage

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enterprise development into a single, consistent knowledge system.

2. Application of System Theory to the functional areas of knowledge and the development sectors of enterprises

2.1. Bertalanffy's System Theory. In 1950, Bertalanffy (1901 - 1972) proposed a system theory which he initially intended only for physical systems; however, he later realized that the laws discovered by this theory could be applied to many systems in various fields of study, not just physics. A fundamental aspect of Bertalanffy's system theory was the identification and clarification of the characteristics of closed and open systems. Bertalanffy defined: a closed system is one into which no material can enter or exit. An open system allows for the regular inflow and outflow of material; thus, its composition always changes. According to this definition, open systems (including organizations and enterprises) are the main subjects of study not only of the life sciences but also of the social sciences and humanities[1].

Open systems have the characteristics of organic entities (organisms, society), being dynamic, manifesting in phenomena such as metabolism, growth, development, reception and response to stimuli, information, ... and by their continuous transformation. Yet, open systems can still reach a state of equilibrium, remaining static under certain conditions. Still, even in such a state, they continue to undergo constant change with ceaseless material inflow and outflow. Bertalanffy referred to this condition of open systems as a steady state, which can be understood simply as a dynamic equilibrium distinct from the static equilibrium (immobility) of closed systems.

For open systems, a dynamic equilibrium can emerge from different initial conditions and through various processes, meaning the same outcome can arise from different starting conditions. Bertalanffy refers to this behavior as *equifinality*. In open systems, because the material exchange with the environment continues until a stable state is reached, the phenomenon of equifinality is less dependent on the initial conditions and more on the processes leading to the outcome. However, this characteristic of open systems also has its limits due to their inherent imperfection and the hierarchical order within their structure. Organic open systems exhibit another distinct feature compared to closed (inorganic) systems: *anamorphosis* (changeability, morphological diversity, transformative uniqueness) - transitioning to higher states of order signifies their advanced development. Bertalanffy consistently emphasized these two attributes of open systems, along with self-regulation and self-

reproduction, as inseparable features of living phenomena, organic systems.

According to Bertalanffy, the structural isomorphism of *different levels and layers* of reality dictates the unity of science. This aligns with the Marxian philosophical perspective that the material unity of the world determines the unity of sciences. Bertalanffy elaborates on the *hierarchical order of reality's unity*, from physical and chemical systems to biological and social systems. From this foundation, it can be understood that systems are differentiated into subsystems and layers according to a hierarchical order. Accordingly, the sciences studying them (including management science) are also organized hierarchically.

2.2. *Parsons' Theory of Social Systems*. Building on the ideas of Bertalanffy, the American sociologist Talcott Parsons (1902 - 1979) continued to develop and apply the general system theory to social studies. His 1951 publication, *The Social System*, explores actual differentiation, namely the "structural differentiation" of society, "the differentiation within social systems." Thus, his theory could be termed "Theory of Structural Differentiation of Social Systems." The research question is: what components make up society, and how are they related to each other? According to Talcott Parsons' theory, the differentiation of the social system occurs in two dimensions. *The first dimension is* the differentiation of roles, which leads to the study of the distribution of roles within the social system and the coordination or integration of these roles. Thus, society is a structure comprising a system with differentiated roles[2]. *The second dimension is*, given a defined role structure, how mobile elements can be distributed. Parsons refers to the process of distributing these elements within the system of roles as *allocation*[3]. The allocation process (broader than *differentiation*) involves three aspects: (1) assigning each individual to their role, or role allocation (specifically, this aspect alone is *differentiation*), (2) allocation of resources, and (3) distribution of rewards.

Therefore, according to Parsons' theory, social differentiation is the division of a unit or structure within the societal system into two or more units or structures that differ in their characteristics and functions within the system. As indicated by Parsons, the social system, in terms of structural components, is a system consisting of social roles as differentiated structural units[4]. Thus, an organization or enterprise is also a subsystem with social roles.

The next task here is to explore how individuals, means, and motivational rewards are allocated to social roles.

An example could be that, to build an organization, the necessary step before training and coaching employees is to determine the structure of job positions within the organization and what each position requires the employee to do, i.e., what social roles are needed, from which the recruitment of individuals to fill these positions can be optimized for performing these roles. Social system differentiation is not merely labor division or arranging individuals into social structural roles, as mentioned, but also includes the differentiation and allocation of resources and incentive rewards for the roles within that system. In summary, the social structure, in a narrow sense, is merely the system of social roles. From this perspective, social management also needs to be understood in a narrow sense as essentially the allocation of individuals to positions for performing their roles within the social system. More broadly, in a general sense, management includes human resources management (in a narrow sense) plus the allocation and distribution of resources, means, and incentive rewards.

From Parsons' theory, it can be inferred that society is composed of open systems, among which *the social system* is just one, and it constantly engages in complex exchanges with its "neighboring" systems of society[5]. The neighboring systems that constitute the direct environment of the social system are cultural, personality, behavioral systems, and other subsystems (*the social system*, such as an organization, an enterprise…] does not encompass these systems, hence society here is understood in a narrow sense). In turn, *the social system* is further structurally differentiated into numerous subsystems, each of which is an open system performing specific functions in the continuous exchange with the surrounding subsystems of a larger system[6].

Consequently, including *the social system*, society consists of four systems interacting with each other in a controlled hierarchical order from top to bottom: culture, society, personality, and behavior. Among these, the lowest is the behavioral system that controls the physiological-anatomical processes of the biological body in relation to the physical environment. In turn, the behavioral system is controlled by the personality system, which in turn is controlled by a higher system, *the social system*, and this system is, sequentially, controlled by the highest system in society, the cultural system.

2.3. *Functions of Social Subsystems*. With respect to *the structural division of the social system*, Parsons' system theory, when applied to the study of social systems, reveals certain principles, as follows. On the functional dimension, the structural division of

the social system is dictated by the functional requirements imposed on the entire system. Therefore, in correspondence to those functions, the system autonomously divides its structure into components (subsystems) such that each element performs a specific function. Each component is related in certain ways to the other components.

As indicated by Parsons, the structural division of the social system can be conceptualized according to a two-dimensional functional matrix. Horizontally, functions are differentiated into: external orientation - outward, and internal orientation - inward. Vertically, functions are differentiated into: - means and - ends. This two-dimensional functional combination creates a system of four functions that Parsons sequentially named AGIL (akin to a logical square), specifically as follows[7]: 1) the "external orientation – means" function or *adaptatio*n, denoted as A; 2) the "external orientation – ends" function or *goal attainment* - G; 3) the "internal orientation – ends" function or *integration* - I; 4) the "internal orientation – means" function or *latent pattern maintenance* - L

To accomplish these four functions, the social system structures itself into four specialized subsystems corresponding to each function: 1) *the economic subsystem* specializes in producing and trading goods to ensure the adaptation of the system; 2) *the political subsystem* specializes in leadership, management, decision-making, and organizing actions to achieve the goal-oriented objectives of the whole system; 3) *the legal subsystem* ensures cohesion, unity, and integration of the components of the social system and addresses conflicts and disputes to maintain the stability and order of the entire system; 4) *the cultural subsystem* focuses on preserving and strengthening experiences, knowledge, and patterns of behavior and activities that are positive, suitable, and create needs and motivations to propel the operation of the entire system.

These four functions structure the system's action control in a hierarchical order, LIGA (in reverse order to AGIL): (1) the L function (latent pattern maintenance); (2) I (Integration); (3) G (Goal – Attainment); (4) A (Adaptation)[8].

Fuction	External Orientation	Internal Orientation
Means	*Adaption* (Economic) **A**	*Latent pattern maintenance* (culture) **L**
Ends	*Goal Attainment* (Politics) **G**	*Integration* (Law) **I**

The function-system analysis above can be summarized in **Table 1**.

Social differentiation does not stop at the level of the societal system. Still, it continues on the level of subsystems, where each social subsystem is structurally divided into parts corresponding to the four functions. For example, within the economic system, structural division occurs to create parts specializing in production and business; organization and management; nurturing and training; and dealing with financial safety and order issues[9].

3. Knowledge system model on enterprise development management

Corresponding to miniature social subsystems such as enterprises, the knowledge system model on enterprise development management (see: Table 2) will combine the directions for managing the development of individual subsystems and essential elements. Therefore, the development management process is a set of measures aimed at achieving a single goal that affects all aspects of the business's life, including the following levels.

3.1. This knowledge system is first based on the principles and fundamental laws of the most comprehensive knowledge field on development-dialectics (widest in scope). From a practical standpoint, the model particularly focuses on the laws of development that allow for the prediction of the processes' dynamics and outcomes: the law of dialectical synthesis, the law of transformation from quantitative changes to qualitative changes, and the law of dialectical contradiction, which indicates the origin and driving force of development.

3.2. At the second level of this knowledge system, the principles and laws of development are concretized for the organizational system, forming a theory on organizational development aimed at describing the typical changes that occur in the development process of an organization from its establishment. Here, development is seen as a positive qualitative change process; the main criterion of development is achieving new qualities that reinforce the organization's survival capability[10].

The development process always occurs gradually. Throughout the development process, enterprises undergo transitions between different stages of development. Speaking of development stages implies referring to a relatively stable state in the organization's life cycle, characterized by specific features and levels.

An important task is to identify the similarities and differences between the organizational development model and the organizational life cycle model. This is something that researchers often confuse. The difference lies in the nature of the process being described: in the theory of organizational life cycle, priority is given to the actual dynamics, including both the development (evolution) and regression, aging

(involution) processes; in the organizational development theory, the emphasis is always on the possibility of positive change (evolution). The decline in the life cycle curve of an organization no longer reflects development. Still, it indicates a reverse process, so this area is not within the research scope of the development management theory.

This article selects the organic evolutionary development model of the enterprise proposed by B. Lievegoed and F. Glasl[11] as the basic model for building the enterprise development management system. This model includes four main stages: initiation, differentiation, integration-linkage, with changes occurring by overcoming three corresponding crisis stages (arising from the boundary issues of each stage): the crisis of the initiation stage, the crisis of the differentiation stage, and the crisis of the comprehensive development (integration) stage. The reason for choosing this model is due to its completeness and systematic approach, consideration of the influences of both internal and external environments, as well as its high practicality, demonstrated by its provision of specific means to implement developmental changes[12].

3.3. The third level of the proposed knowledge system is the concept of managing changes within the organization. This level is more practical in application. The methods

PRINCIPLES AND LAWS OF DEVELOPMENT					
THEORY OF DEVELOPMENT – 1. DIALECTICS	**DEVELOPMENT STAGES: STAGE 1 → STAGE 2 → STAGE 3 → STAGE 4**				
	2. THEORY OF ORGANIZATIONAL DEVELOPMENT	**MECHANISMS OF PHASE TRANSITIONS**			
		3. THEORY OF MANAGING ORGANIZATIONAL TRANSFORMATION	**FUNCTIONAL KNOWLEDGE AREAS**	**ORGANIZATION (SYSTEM MODEL – EVOLUTION)**	**DEVELOPMENT AREAS**
			Organizational behavior, management by organizational culture	**Cultural identity subsystem**	Organizational culture development (formation of new values, attitudes, behavior models)
			Strategic management	*Policy, strategy, programs*	Strategic development (strategy refinement, business model transformation)
			Management theory	**Social subsystem – structure**	Organizational structure development (enhancing flexibility, adaptability, control, alignment with new goals and tasks)
			Human resources management	*Personnel, groups, environment, leadership*	Human resources development (formation and development of competencies, human capital), management styles and methods
			Management of production, finance, marketing, consumption, supply	*Specific functions, agencies*	Function development and enrichment, specialization improvement
			Process and quality management	**Technical - tool subsystem** *General workflow progress*	Process development (design, construction, and application of new standards) and inspection methods
			Audit, business economy, and consumption	*Tangible material means*	Material-technical base and territorial development

Table 2. Knowledge System Model for Enterprise Development Management

of this concept allow for a transition from a general management orientation of enterprise development to a specific action program for subsystems with different components. It relies on methods of organizational change to build mechanisms for transitions between stages in the development process.

3.4. The focus of the knowledge model on development management is the organizational model as a system. The systemic approach to organization requires establishing connections between concepts of enterprise development management and other management areas. Its use enables the transition from general enterprise development management to specific measures corresponding to each functional area of operation.

The enterprise system evolution model (B. Lievegoed and F. Glasl) is used as a representative basis for organizations within this system, reflecting all the main aspects of presenting the enterprise as a socio-economic subsystem (according to G.P. Shchedrovitsky) [refer to 10]: simply the materials from which the system is built and operates, its formational structure, functional division, and its process structure. An enterprise in this model functions as a combination of three subsystems (cultural, social, and technical - tool) and seven essential constituent elements of them (cultural identity; policy, strategy, programs; structure; people, groups, environment, leadership capabilities; individual functions; general business processes; tangible means), interacting continuously with each other and forming a dynamically developing complex system[13]. Therefore, development management is divided into various fields covering all activities of the enterprise.

3.5. The final level of the knowledge system on enterprise development management focuses on functional areas, considering methods and technologies for developing subsystems and related components of the organization. Therefore, technologies and methods for developing cultural subsystems are described in works on strategic management and organizational behavior management, social subsystems - in works on human resources management, organizational theory, and technical and tool subsystems - in works on quality management, logistics, business economics, etc.

4. Conclusion

The proposed model integrates renowned approaches to management development at the company level, the level of main subsystems, and the level of individual elements of the organization. This model allows us to view the process of enterprise development management as a set of activities unified by a common purpose and related to every aspect of the enterprise's life.

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