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ARCHETYPAL PRINCIPLES AS A BASIS FOR NON-CONFLICTING DECISION-MAKING

Abstract. This article explains that applying of system archetypes with irrational thinking is an effective approach for non-conflicting decision-making.

Keywords: system archetypes, system thinking, irrational thinking decision-making process, equilibrium, balance.

АРХЕТИПНІ ЗАСАДИ ЯК ОСНОВА НЕКОНФЛІКТНОГО ПРОЦЕСУ ПРИЙНЯТТЯ РІШЕННЯ

Анотація. У статі пояснюється, що застосування системних архетипів з ірраціональним мисленням є ефективним підходом до неконфліктного процесу прийняття рішення.

Ключові слова: системні архетипи, системне мислення, ірраціональне мислення, процес прийняття рішення, рівновага, баланс.

АРХЕТИПИЧЕСКИЕ ПРИНЦИПЫ КАК ОСНОВА НЕКОНФЛИКТНОГО ПРОЦЕССА ПРИНЯТИЯ РЕШЕНИЯ

Аннотация. В статье объясняется, что применение системных архетипов с иррациональным мышлением есть эффективным подходом к неконфликтному процессу принятия решения.

Ключевые слова: системные архетипы, системное мышление, иррациональное мышление, процесс принятия решения, равновесие, баланс.

Target setting. The decision making process (DMP) in the complex and dynamic environment requires understanding of behavior of an organization (system). Archetypal principles can facilitate conducting non-conflicting DMP through systems thinking, visualization, understanding of the complex environment and influence of behavior of the system and the environment.

Analysis of the recent research and publications. From a big variety of archetypes this article will focus on system archetypes, which can be topical for the DMP. Peter Senge, Daniel Kim, and William Braun have researched and analyzed system archetypes as a practical approach to understand principles of system behavior and apply system thinking to the DMP. It explains tendencies of long-term system development and predicts possible system reactions.

Peter Senge introduced the concept of system archetypes in his book "The Fifth Discipline". Hepaysattention to a learning organization, as an adaptive and effective system, in the framework of "the five disciplines: systems thinking; personal mastery; mental models; building shared visions and team learn-

ing" [16, p. 6]. Daniel Kim considers that system archetypes are "powerful tools for diagnosing problems and identifying high leverage interventions that will create fundamental change" [9, p. 2]. He proposes the use of archetypes to leverage the loop: system structure — patterns of behavior — events. William Braun highlights "system serve as the means for gaining insight into the "nature" of the underlying problem and for offering a basic structure or foundation upon which a model can be further developed and constructed" [5, p. 1].

The purpose of the article. The main goal of the article is to explainimportance ofthe concept of system archetypes for a non-conflicting DMP. Another purpose of the article is to show that combination of system thinking with irrational thinking, understanding of system behavior, organizational and DM cultures, based on system archetypes, improves the DMP.

The statement of basic materials. Non-conflicting decision-making may require understanding of system archetypesin order to evaluate the organization (system), the environment, and their mutual interactions. The system archetypes describe principles of sys-

tem behavior and may play asignificant role in the DMP. The DMP works in the framework of ends, ways, and means with possible permissible risk. To make a right decision all these notions have to be balanced. People make decisions tosatisfy their needs through maintaining equilibrium between the system and the environment in order to provide balance (effectiveness) for the system [14, p. 3]. Interdependence of the environment and the system complicates the DMP especially in long-term planning. Understanding of behaviorof the system,based on principles of system archetypes,facilitates non-conflicting decision-making that is essentialin problem solving by peaceful means in the context of Diplomacy, Information, Military, and Economy.

The DMP in the complex environment requires understanding of behavior of the system and the environmental as a mutually interrelated process. The system archetypes are patterns of system behavior "that emerge from the underlying system structure" [5, p. 25] that describe system behavior from the position of the need to save system functionality and its structure. Applying of system archetypes to the DMP in the complex environment is significant because they "do not describe any one problem specifically. They describe families of problems generically. Their value comes from the insights they offer into the dynamic interaction of complex systems" [5, p. 25]. The system archetypes generate systems thinking, which evaluatesthis process. It helps to find a way for problem solving through non-conflicting decision-making.

Peter M. Sengesaid, "I see systems thinking as a way of seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots" [16, p. 68]. In addition, he states "systems thinking needs the disciplines of building shared vision, mental models, and personal mastery to realize its potential" [16, p. 12]. System thinking is a powerful tool of the DMP that "comes from the focus on the level of systemic structure, where the greatest leverage lies for solving problems" [9, p. 2]. A structure influences behavior as the first principle of systems thinking. "When placed in the same system, people, however, different, tend to produce similar results". To avoid this "we must look beyond personalities and events" [16, p. 18] through applying of systems thinking to the DMP.

Archetypes are different and each archetype has "a characteristic theme, story line, patterns of behavior over time, structure, mental models and effective interventions" [18, p. 1]. There are system archetypes that form the set of tools that describe patterns of behavior in systems. They are: 1) Limits to Growth (or Limits to Success); 2) Shifting the Burden; 3) Drifting or Eroding Goals; 4) Escalation; 5) Success to the Successful; 6) Tragedy of the Commons; 7) Fixes that Fail; 8) Growth and Underinvestment; 9) Accidental Adversaries; and 10) Attractiveness Principle [5, p. 2].

Four types of archetypes, called "Reinforcing engines", are initially driven by the growth engine of reinforcing loops: "Limits to Success", "Tragedy of the Commons", "Growth and Underinvestment", and "Success to the Successful". The system archetypes, called "Balancing Corrections", pre-

sent another group: "Fixes that Fail", "Shifting the Burden", "Escalation", and "Drifting goals" — are all driven by balancing forces that are intended to "fix" something in the short term but often to produce undesirable results in the long term [10, p. 5].

The system archetypes describe system processes. For example, "Limits to Growth" is a reinforcing process that "creates a spiral of success but also creates inadvertent secondary effects (manifested in a balancing process) which eventually slow down the success" [16, p. 95]. The philosophy of "Success to the Successful" is "my growth leads to your decline". The archetype "Accidental Adversaries" means, "two or more entities join forces for mutual benefit, but unilateral actions by one entity accidentally damage the other, and the partnership falters or fails". Another archetype "Fixes that backfire" support a principle that "my fix comes back to haunt me" [18, p. 3]. The system archetype "Shifting the burden" means, "an underlying problem generates symptoms that demand attention... people 'shift the burden' of their problem to other solutions ... which seem extremely efficient [but] only ameliorate the symptoms... and the system loses whatever abilities it had to solve the underlying problem" [16, p. 104]. The archetype "Drifting Goals" proves possible change of goals when "I become satisfied with less". To be competitive each party should "match or beat the efforts of the other" [18, p. 3] describes the archetype "Escalation".

Archetypes can be used in different ways: as "lenses", as structural pattern templates, as dynamic scripts (or theories), and as tools for predicting behavior" [12, p. 1]. In addition, they can "make changes to a system, and present information about problems and solutions" [6, p. 7]. To influence system behavior, "you must identify and change the limiting factor" [16, p. 101]. The system archetypes can explain the need for limit to growth; support the idea about changing of goals; success to the successful as attractive leadership and others.

Mythic imagination, as a mental model, forms national, corporate, organizational approach to the DMP. The DMP may look like a game of human imagination that can be limited only by human perception and accepted norms of behavior. Human imagination, based on culture, myths and stories, builds mental models (for example, how to speak, what to wear, how to behave, what to buy and where). Systems thinking may help to recognize mental models, avoid human traps through influence on these models, patterns of behavior, and events. In addition, the system archetypes can play a role of background to fulfill data gaps, make assumptions, and prove guess in the DMP.

The system archetypes canhelp to analyze human mental models ofculture and behavior. Mental models,based on human norms,play asignificant rolein the DMP. Beliefs, values,moral, trust, and other human norms arefoundationsof any social system. They have been formed with a purpose to survive for the society (nation). Beliefs and values may define national, corporate cultures and build own system archetypes of human thinking. For example, DM culture [14, p. 5] can be a result of this thinking. Beliefs and values present an uncon-

scious level, which is the most stable in comparison with emotions, thinking, habits, and human behavior. Based on differences in beliefs and values people in similar conditions can make different decisions. Also, the decision that is made based on beliefs differs from the decision that based on values [2].

Environmental changes influence human normsas critical fundamentals of the DMP. Rapid technological development, globalization, erase of international borders, and mixture of different national traditions create new relationships and communication lines. In spite of long-life of human norms, the environmental change forces to revise rules of behavior and relations among people. System adaptation to a new environment may require revising beliefs, values, and principles. This process is complicated and psychologically painful [14, p. 5].

Stages and elements of the DMP are psychologically oriented. System archetypes may decrease influence of human traps on the DMP. Dan Gilbert in his lecture "Why we make bad decisions?" explains that people make decisions according to theformula of D. Bernuly: Expected Value = (Odds of Gain) × (Value of Gain). People make errors in odds and values. Errors in odds:the past experience influences present situation because we compare current proposition with the past instead of possibility. Errors in values: comparing with the possible. For example, now is better than latter and more is better than less [7].

To avoid mistakes in the DMP requires understanding that the system and the environment look for equilibrium. In this condition the system and the environment can be adapted to each other, but in different degree. Thus, "a philosophy of adaptation might be the philosophy of the DMP with an appropriate DM Culture" [14, p. 4]. To adapt the system to the environment properly requires interventions to the system based on preventive actions to system archetypes. For example, to avoid effects of "limits to success" requires prescriptive actions. They are: "focus on removing the limit (or weakening its effect) rather than continuing to drive the reinforcing process of growth; use the archetype to identify potential balancing processes before they begin to affect growth, and identify links between the growth processes and limiting factors to determine ways to manage the balance between them two" [11, p. 10].

Structural change of the system can be a step of system adaptation. To influence the system structure a decision-maker has to determine a center of gravity (COG) of the system. The COG is "primary sources of moral or physical strength, power and resistance" [17, p. IX], a key element (notion) of the system.The COG is a start point to create an operational approach and design of the DMP to achieve the end-state. The task is to adapt own system to the environment in order to save system effectiveness [14, p. 4], and influence (neutralize) the opposing system/environment in order to establish desired conditions to achieve the goal, as a required action to maintain equilibrium between the system and the environment in order to provide system balance.

The system archetypescan facilitate creating a learning organization, as a

highly adaptable system,through intervention in a system structure and design of mental models of organizational culture and proper leadership. There is a paradox of saving of principles and the need to change them. In spite of relative stability of principles, rules, and norms, they can be changed on the stage of transformation of system structure. The system archetypes present principles of system behavior, which are relatively stable. A spiral process of system development provesthatit is possible to analyze current system behavior based on the experience, but with slightly different view on the problem because of a new level of development.

To influence different elements of the system (structure, people, vision, flexibility, and organizational culture) may help to maintain system effectiveness through system adaptation(change). It is important to determine on which element to influence and when. System archetypes can facilitate implementing change properly because "they provide insight into the underlying structures from which behavior over time and discreet events emerge. As prospective tools, they alert managers to future unintended consequences" [5, p. 1].

Cognitive process of change implementation lies in applying of rational (logical) and irrational (not logical) thinking. A principle of economy of means to achieve the goal defines a rational decision. The logic goes from understanding of rationality based on culture (national, organizational, corporate) and experience. In changeable environment, this framework can become obsolete. As a result of this, the accepted logical approach to the DMP may become not effective also.

In other words, this approach does not look rational (effective) anymore. For example, a logical decision based onobsoleteorganizational cultureand norms can be wrong. Thus, a past rational approach (thinking) to the DMP is not effective and an irrational approach becomes more appropriate. A today irrational decision may become rational tomorrow and obsolete in the future. There is a repetitive imagined process of replacement a past rational approach by irrational one. In any case, people see irrational decisions as unusual approaches because it challenges their mental models.

People use previous experience to evaluate situation rationally. System thinking looks rational because based on the universal system archetypes. However, the DMP in the complex and dynamic environment requires applying both rational and irrational thinkingin spite of their natural differences. Combining both of them in the DMP would be significant to make a right decision" [14, p. 23]. The dilemma is how and when a decision-maker has to use rational "X" and/or irrational "Z" (figure 1) approaches to avoid mistakes in the DMP.How far are they located from each other?

In the point A the level of irrationality may be low (Lir.min) and the level of rationality can be high (Llog-max) or vice versa. It depends on a situation. For instance, decision A may not be equal to B (fig. 1), but both of them can be right. In a new and unpredictablesituation applying of an irrational approach (Z) to the DMP can work better then rational one (X), which may be more suitable to the stable situation. Irrational and rational thinking

creates a paradox because they present opposite sides of the decision-making line (fig. 1). It may be connected with mental models. The problem is to combine them together and use simultaneously.

Making irrational decisions requires applying critical and creative thinking [15, p. 2–II] that help to avoid human traps, logical fallacies, heuristics and biases [15, p. C-14–C-22]. This thinking is psychologically complicated and looks unusual for people. It is possible to assume that a human brain, as a system, works rationally according to the system archetypes. Therefore, understanding of systems archetypes may help to find approaches to develop critical and creative thinkingskills.

Thinking in the DMP may include two types: automatic and selective when a person should make choice from different alternatives [8]. Both of them are actively involved in endless DMP, which has the goal to provide equilibrium between the system and the environment in order to maintain system balance and effectiveness [14, p. 3]. Daniel Kahneman proposes two systems that are operate during our thinking. "System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control. System 2 allocates attention to the effortful mental activities that demand it, including complex computations" [8, p. 22]. The frameworks of systems archetypes may be closer to the System 2 when we deal with complex environment.

Thinking can be associated system archetypes through mental models. Archetypes have a number of purposes, for example: "human communication; specialized searching; knowledge-enabled systems; knowledge-level interoperability; domain empowerment; and intelligent querying" [3, p. 9]. There are archetype design principles [3, p. 11–12]. Human designed archetypes create mental models that are placed in national, organizational, or corporate cultures. "A Theory of fads, fashion, custom, and cultural change as informational cascades" suggests that a human makes decision mostly based on activities of others. The actions made by the majority increase a probability to repeat them by one person [4]. It can prove the fact that system archetype creates a culture, which psychologically manages behavior of the individual. A person, who does not repeat the same actions, will not be welcomed in this system. To be in the system you should behave (think) as system behaves. In addition, visual illusion, a format of delivering of the information, interpretation of possible options for DMand a set of them facilitate making wrong decisions [1].

The system archetypes can be effectively applied tothe DMP because "they are commonly occurring combi-

Fig. 1. **Points of decisions,rational and irrational ways of thinking**
Source: created by author

nations of reinforcing and balancing feedback" [18, p. 1].

A decision is made based on past or current data that is received througha feedback loopwith delay. Coefficient of dynamic equilibrium between the system and the environment (Keq) determines this delay [13, p. 9]. In the dynamic and changeable environment, DM delay may decrease the system effectiveness and, eventually, destroy it. It is possible to assume that there is a certain minimum coefficient of dynamic equilibrium Keqmin (fig. 2) after that the system starts losing stability (balance) and effectiveness. Keqmin corresponds to a moment to make a decision (fig. 2). Hence, the moment (time) to make a decision is a function of Keqmin [**T to make decision = f (Keqmin)**]. Thus, applying of the system archetypes to the DMP can help to maintain system functionality.

People, like systems, act in order to satisfy their needs (to save system functionality). It is possible to observe behavior to survive and ethical behavior (according to accepted written and unwritten rules). These types of behavior may depend on the level of stress (system chaos). If the established ethical rules became obsolete in a new environment and do not provide appropriate level of life, human behavior may shift to "behavior to survive". The example of this isa replacement of a communism system of life by a capitalism system. Thus, structural change of the system forced to change mental models. It happens when the system becomes not effective anddestroys. For instance, the closed Soviet economic system collapsed because it did not correspond to a new environment. The critical point of system destruction may correspond to Keqmin when a decision must be made (fig. 2). It means thatexisted rules of behavior do not provide enough system effectiveness.

People and the environment define rules of behavior. The human nature remains more stable in comparison with the environment and, therefore, makes rules respectful and relatively stable. Cultural mental models with ideology and rules of behavior shouldsatisfyhuman needs. Environmental change creates a new set of rules that should organize human relationships to provide balance for the system (society).

Thus, the system archetypes facilitate effective DMP by decreasing delay in decision-making and applying new mental models, as a basis for decision-making, in order to adapt the system to the environment. In addition, the system archetypes can help to evaluate future environmental and system behavior as a whole process by applying systems thinking that creates favorable conditions for non-conflicting DMP.
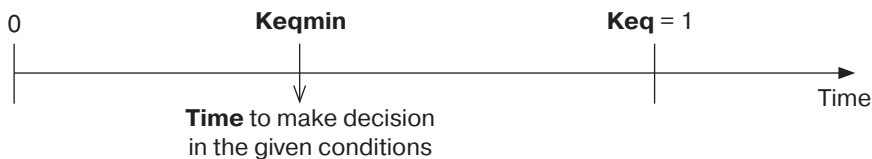

Fig. 2. **Time to make a decision**
Source: created by author

Conclusions. To summarize, the systems archetypes describe system behavior, create system thinking and mental models that facilitate non-conflicting DMP. The DMP in the complex and dynamic environment requires both rational and irrational thinking to make a right decision. Applying system archetypes to describe features of organizational and DM cultures can be a subject for further research.

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