Convergent Cognitype for Speeding-up the Strategic Conversation

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Abstract: For speeding-up consent achievement in a team it is worth to utilize stabilization and convergence strategic conversation (meeting) technologies in coordination processes of mutual understanding amongst the team members regarding targets and actions. These technologies are based on fundamental thermo-dynamical relations, quantum effects and on ill-defined (ill-posed) problem solution methods in topological spaces. Developed methodology was realized as a Situation center. Approach was verified through many branch and corporate strategies.

Keywords: strategic conversation (meeting), group decision making, situation center, convergence, ill-posed problem solution, quantum, chaos, stabilization, consent

1. INTRODUCTION

Considering globalization and grows of market dynamics, governmental and business executives have to implement new means for acceleration of decision making processes. Depending on its dynamics, we can define three types of markets' behavior:

1. Market's segments and characteristics of consumer demands in works, production and services are changing slowly. For example almost constant within few years;
2. Characteristics of consumer demands in works, production and services varying within 20-25% in 7-9 months and they are rather predictable;
3. Values of consumer demand characteristics in works, production and services are fluctuating unpredictably. For example they could be completely different within one or few days.

Decision making within first two types is based on traditional well-known techniques, such as: reengineering, Lean Thinking, SWOT, BSC, ERP, CRM, Data-mining, etc. We can assign to these two categories markets with enough automated marketing, statistical and sociological information. This way on dynamic stock markets it is possible to get some advantage by computerized methods of technical data processing, this way brokers can react within dozens of seconds. But in long-term effect will vanish once method becomes common.

From management point of view there are several modern trends such as: bureaucracy reduction; flattening of control hierarchy; horizontal links encouraging; breaking walls between divisions; project methods implementation; confidence increase between manager and his team; leadership atmosphere; implementing principles of permanent self-education; replacing salary with rewards; flexibility of local grocery store on corporate level; dismiss strategic planning divisions; reduction accidental losses in financial control; enlargement of media components and broadcasting networks; transparency improvement; over-insurance; instead of traditional source of profit such as financial or production services, they rely on advanced sources of profit such as nanotechnology, medicine and entertainment; making more accent on intellectual property and on intangible assets; organization of "seeking of the future" conferences.

For the moment third type of market is appearing. Its getting more complicated and fast, and its predictability is vanishing – thoughts and feelings, some transcendental (meditational and incognizable) states of mind of consumers affecting much business planning. Unpredictable protuberances of market require more new resources to keep corporate competitiveness.

In these conditions time lag for decision making, considering situations when future is poorly predictable, is getting smaller and smaller. In prior practice, to build business strategy, it was usual to involve external consultants or to keep strategic planning division. New rule states that group of people with some problem, can solve it by themselves, it is only important that decision-making process should be clearly specified. Author proved this statement through many strategic conversations and meetings with governmental bodies and with corporations.

2. TEAMS' POTENTIAL

When there are not enough money, ideas or material resources, then unique advantage between other people and organizations gives the consciousness of the team. Team building relates much with human features [Lencioni P.,

1992]. It is important to notice that team building begins from the trust that could not be formalized. First of all it provides spiritual invulnerability of people from external nuisances and ensures safety. From ancient days, trust is associated with surrender - necessity to giving you up to someone else with ability to believe, to entrust to feel sense of belonging. Building a team we should consider expected results, conflicts, obligations and responsibility which members have to accept. Balancing of team elements appearance characterizes leader's ability or leading group ability to form and to keep its lifecycle and to control motivations.

As wee can notice most of these features escape from logical description, metrical representation or quantitative measurement. They have rather affective cognitive or qualitative character.

Nevertheless introduction of formalization into team building process is a unique way for acceleration of formation of consent regarding targets and the ways of actions of all team and its members. Situation center is a tool for this formalization. It is a center of methodological, visual and technical means for acceleration of strategic conversation (meeting) and group decision making. . Situation center is aimed to "compress" time for decision-making including strategic decisions.

Through Situation center, decision can be developed quickly by organization itself. For this purpose it can invite consultant, who knows well methodologies of group strategic analysis and planning. After that together with administration could be selected representative group of employees and this group following strict methodology can develop strategy within 1 - 3 days.

Present experience in such a quick strategy development shows that strategic group can be composed of leading managers of organization, who know well its operational aspects. Group usually consists of 5 - 35 members. Usually there is no relation between number of team members and a size of organization. If company is small, strategic group may include all its employees. If company is very large, strategic group may include not more than 250 of its employees, but. In this case the strategic conversation technology will be much more complicated.

Taking into account time deficit of company members, and fast external events dynamics, strategy development process by large number of people should not be time consuming. But for this, it is necessary to consider information processing laws that provide consent attainment within limited time.

3. CONSENT STABILITY

Main criteria characterizing consent attainment process are two factors: stability and purposiveness (convergence). Stability of meeting realization is necessary to keep its stabile and we need convergence to attain result in limited time. Meanwhile, group targets could be unclear, fuzzy and ill defined.

Realizing strategic meeting or conversation, process of consent attainment we can hypothetically characterize it as an interaction of energies of free mental fields. Then, itself the process of group consent attainment regarding decision of this or that control problem we can express as a transformation dynamics of:

- Phenomenological assets of variables of non-geometric nature like: dreams, wishes, life energy, potential, temperature, entropy, thoughts; feelings; spirituality and so on;
- Variables of geometric nature like a flowchart, scheme, symbol, archetype, predicate, formula, phrase, position, coordinate, velocity, acceleration, etc.

For example, point of the meeting can be related with main activity of the organization, which may include production or services. In this case consumers' needs could be ill studied or principally incognizable. Services derived from the product gives usefulness, which ensures customer satisfaction. We can represent this situation as a diagram of the Fig. 1.

We can represent the situation of Fig. 1 as a dynamics of the Hamiltonian system, which identifies sets of components with uniform features [Ulaynov S.V., 1998]. For Hamiltonian system there exist a Lagrange equation (kinetic function, which should be distinguished from the energy) $L=K-U$, where K is a kinetic U is a potential energy respectively. Then, system behavior can be expressed as a Lagrange' equation of the second type, and for analysis of stability, we can utilize Lyapunov's function behavior V, which can represent full system's energy $E=K+U$.

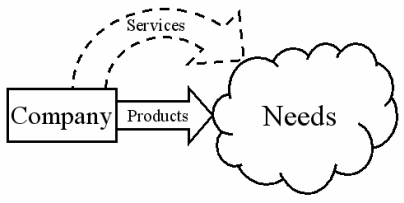

Fig. 1. Services satisfy needs

Let's imagine that our system includes all elements of geometrical and non-geometrical nature representing all external influences. Then external influences will disappear and system will be isolated from the environment (closed system). For closed system $E=const$ (law of energy conservation). In this case for the isolated system there is a fundamental relation between its entropy production and Lyapunov's function V:

$$б = dS/dt = -(1/T)\, dV/dt, \quad (1)$$

where S – system's entropy, T – normalization coefficient, σ – entropy production rate. Creative behavior of closed system develops gnostical tendencies and increases entropy (consumer's and motivation dreams, wishes, chaos) and geometrical nature element's variation (formulas, structures, forms) creates knowledges and communications, thus creating a new action. In order to provide stable behavior of such a system the second thermodynamics law should be satisfied - $\sigma>0$, and thus conditions of the Lypunov's stability [$dV/dt<0$]. From abovementioned relation we can also derive that some systems' characteristics may lead to instability of its development: with increase rate of chaos increases control uncertainty in the system and its degradation.

This way, according to (1) in order to attain stable functionality of the system with an internal source of chaotic uncertainty it is necessary to remove its isolation to make system "opened", providing an exchange of internal information about system with an environment. Lack of information exchange process with an external media may lead to excessive entropy accumulation (to degradation) in the system violating stability conditions.

As one of such an "openings" could be expulsion into an external environment as an individual system of some source of the chaotic information, for example, of phenomenon of fluctuational wish, dream of consumer. In marketing practice one of such kind of separated systems could be interpreted as an organization (power authority, corporation), which provides services of customer's satisfaction while the second one is itself the chaotic kingdom of dream. In this case, we can demonstrate (Ulyanov S.V.,' 1998) that stability of behavior (or of the development) of the first of abovementioned systems could be defined as follows:

$$dV/dt = P*P' + (S_{int} - S_{exch})*(S'_{int} - S'_{exch}) < 0, \quad (2)$$

where P and P' – correspond accordingly to level and to rate of an order in the organization variation (plans, action logic, process schemas, management archetypes etc.), S_{int}.and S'_{int} – mean accordingly level and rate of an internal disorder variation in the organization, S_{exch} and S'_{exch} – level and rate of arrival of external chaotic information (fluctuational dreams, intentions, wishes).

Relationship characterized as an equation (2), helps to increase stability of consent attainment process of the group of people during formation of team action strategy. Moderator (who is conducting meeting) uses this strategy. From this relation skillful moderator can see dependency of stability level of the discussion process from:

- information openness of a discussed theme;
- stiffness of conversation schedule;
- changing rates of openness and of stiffness;
- the level and rate of an internal chaos generated during discussions.

Implicit team wishes (dreams, intentions, interests, etc.) become apparent through the continuous chaos of: fillings and thoughts, mimicry and gestures, but it is expressed by means of discontinuous (discrete) words. At the same time strategic meeting, where chaos of team members' wishes is predominating, results in meeting over-duration , in the uncertainty of the situation and it is up to be failed.

The unity of the whole and particular, synthesis and analysis, continuity and discrete – is the nature permanent attribute. Therefore in the uncertain conditions group decision synthesis is accompanied by quantization of the wishes. In particular quantization of the whole assists in trying to make a sense of the group acts in common, to create the filling of responsibility, to transform members' intentions into the main goal.

In these conditions the aggregation of the team members' wishes looks like quantum-dynamic system (), where:

- For wishes measurement it could be utilized the regularity, which looks like Heisenberg uncertainty relation;
- If wishes are pressurized by external factors it is useful to utilize Schrödinger's equation for getting the group mutual understanding (consent);
- Wishes measurements break into a conversation and have an influence upon the members' behaviours.

According the first assumption the quantization of wishes processes put under $\Delta E \Delta t \geq r$ relation, where ΔE and Δt – are our intuitive understanding of the wishes' energy and time uncertainty correspondingly; r – is the constant distinguish from Planks' constant essentially. The second assumption could define the rank or reverse squared distribution of the meeting members' wishes, the third – wishes vulnerability.

These assumptions assisting the moderator to accelerate in making qualitative resumes regarding what the team is heading to; finding the common consent ways of their mutual strategic solutions.

4. CONSENT PURPOSIVENESS

Control process of the strategic meeting should be convergent to some goal. It should be purposeful, in spite of the fact that targets could be fuzzy or ill defined. For this, experience says that it is necessary to regulate the usage of the methods of: cognitive psychology, ill-posed problem solution methods, fuzzy topological spaces, fractal and catastrophe theory, fundamental thermodynamics, image recognition, evolutionary computation, quantum computing and of other information technologies.

As a basic kit could be selected so called system's *cognitive*. And there are could be two basic cognitypes: the convergent cognitype and the divergent one. It is convergent cognitype that should provide necessary conditions for process convergence into expected, and at the same time ill defined result. Divergent cognitype is not interesting from system's

constructive viewpoint, since it devaluates the concept of the goal, and thus of all system.

Building of the convergent cognitype is reduced to selection of the characteristics of the formalized problem construction (or at least of its part which could be formalized), which help to create necessary conditions of convergence of the problem's discussion processes to expected result. We can extract these characteristics in following discussion.

In mathematics for representation of the realities which doesn't have any metrical representation they utilize fuzzy, topological and nonmetric spaces. The "points", vicinities, sets and so on represent concepts in these spaces. Points could be "separable" from each other, not by the ruler, but through the operations of fuzzy intersection of their vicinities. These spaces help to comprehend some immeasurable, digitally inestimable reality.

These spaces are key points of many mathematical (and not only) sciences which studying algebras, topois, categories, homologies and topologies (Goldblatt R., 1979; Wong C.K., 1973). These spaces penetrate everywhere in the real life and in the processes of support and selection of personal and group decisions. Then we can make a risk and represent a metaphor of the strategic meeting as a figurative improvisation, represented on the Fig. 2. Let's call this metaphor the *convergent cognitype*.

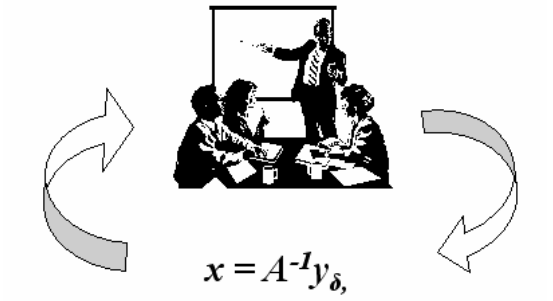

Fig. 2. Convergent cognitype of the strategic meeting

On the Fig. 2 the group of people overwhelm by their feelings and thoughts solves the problem, in which x stays for resources, y_δ as an ill defined dream and A^{-1} is an operator (mean, method, process or algorithm) of the resource transformation for goal achievement.

In mathematics, problems (tasks) whose formulation and solution begins form the target, answering the questions like: "What do we have to do to …?" - are called inversed (on the Fig. 2. it is expressed as an upper index –1 of the operator A). Inversed tasks are characterized by an ill-posedness – their solution may not exist, they may have not a unique solution, and may be unstable - small variation of initial conditions or arrival of some new information can lead to significant variation of the final result.

Abovementioned topological spaces are helpful in solution of such kind of problems. It is convenient to utilize them working with a concepts mentioned during discussion. Working with concepts, when solutions are accompanied with ill-posedness, when emotions and thoughts controlling the situation, distances between concept points are immeasurable, instability of the solution can be avoided only by human wisdom, which allows to introduce into decision process the qualitative information.

As we know, formalisms in the sciences especially in fundamental sciences could live by their own life, generating useful recommendations for daily life, helping to the wheel of fortune to run in a smoother and stable way. Following topological formalisms (Ivanov V.K., 1962, Wong C.K, 1974, Gähler S. 1984, Goguen J.A., 1973), we can derive the following simple recommendations:

- Separate goals, resources and actions;
- Goals may remain fuzzy, but they should be categorized as: main, internal and external;
- Variety of means should be separated into finite number of parts;
- Control all aspects of problem' solution, bindings between goals and resources;
- Never underestimate small factors, etc.

These are necessary conditions for provision of purposefulness for problem's solutions through the complicated path. But only these conditions are insufficient, problem solution is done by a group of people, which often introduces into solution paths a new information which is unknown by themselves. This information is dictated by personal abilities and circumstances, by an experience and congenital character features, through belief and patience, importance and care, simplicity and immensity, isolation, closeness and shyness of the group individuals.

5. THE ORDER OF THE ACHIEVEMENT OF THE STRATEGIC CONSENT

Considering necessity of compliance of conditions of the purposiveness and of the stability of discussions, we can form the order of strategic meeting conduction and of the processing of the stated information. For strategy development, it is necessary to organize a strategic meeting (conversation, discussion). Duration of the meeting should be around 4-8 hours within abovementioned 1 - 3 days.

All members arrive to the meetings with their own thoughts, opinions, goals and resources. In most cases, individual interests are not aiming at the same direction, and each member will not be satisfied if the decision will be done by "majority of votes". His position should be considered the way that he will leave the meeting with satisfaction and with great desire to work.

To make the meeting go right, the followings should be done: location of the consent of members regarding what the team is heading to; to formulate priority problems; to find the ways

of their mutual solutions. This process we can represent as a four-step diagram on the Fig. 3.

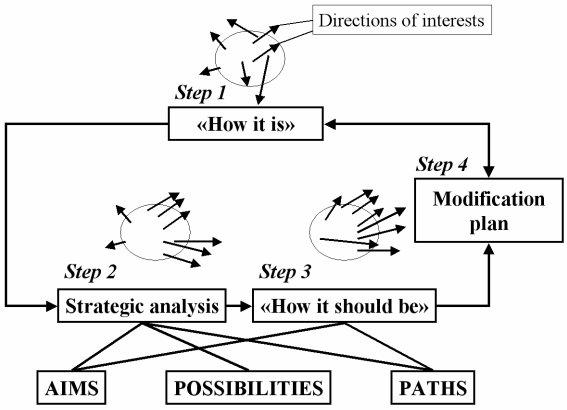

Fig. 3. The order of the strategic meeting

Some sort of problematic usually precedes the strategic meeting. Maybe it could be incoordination or conflicts, unsatisfactory actions of team members. This initial state has to be described by the members on Step 1. Then it is necessary to conduct strategic analysis (Step 2) and to define what and how should be done e.g. to develop a plan (Steps 3 and 4).

Each team member in a short time should make a decision regarding strategic targets of the organization. It may coincide with global decision. Sometimes it happens that someone will have to agree with the global decision, throwing himself into long tortures of dissatisfaction. But dissatisfaction is an enemy of desire to do something, the way to loose social sense of activity of any organization, and a mine of the slowed down action for the leader.

In order to formulate targets and development paths in a meeting time, wee need a thin regulation of action of meeting members and the ability to structure the information. Experience of carrying out of strategic conversations in small groups (up to abovementioned 35 members) demonstrates that separate proposal in the middle of conversation can essentially change the arrangement of target reference points.

Target could be hardly described or formulated. At the same time there is a sense to discuss the strategy only under condition that the target is somehow imaginable for the general consideration. Paths, resources and means of the achievement should be also formally given and described.
One of the proved approaches of meeting regulation is a diagram presented on the Fig. 4.
According to Fig.4 we should consecutively: to define the MAIN GOAL (Mission) of the team; to formulate TARGETS tree; to discover the FACTORS (external THREATS and opportunities given from the outside, define STRONG and WEAK points of the team); utilizing cognitive modeling method recognize the INTERFERENCES amongst the factors; to formulate PROBLEMS and estimate their importance. Then we can get the STRATEGY by: building up perspective directions of actions – the PATHS; conducting cognitive modeling of control decisions (Maximov V., 2001), and finally preparing the PLAN of actions.

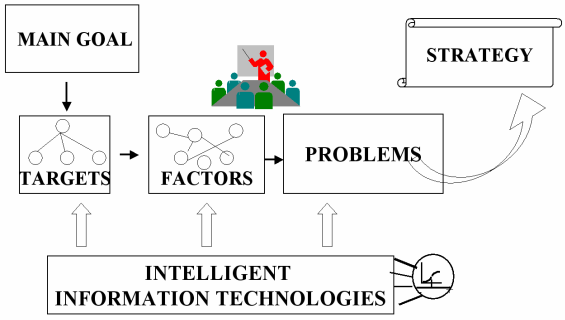

Fig. 4. Regulation of the strategic meeting

Practice of building up strategies for organizations of different kinds (governmental or commercial) demonstrates that definition of what the team wants to improve; which is sphere of under control interests; what is an external and what is an internal for it. Especially it is difficult to answer these questions for governmental structures. For example for large corporation it may take 10% of meeting schedule whereas for the governmental case it could be up to 25%.

Time limit for strategic meeting conduction requires that every report be regulated in enough simple and understandable way. Experience of the meeting conduction according to Fig. 4 demonstrates that members may freely and descriptively answer to many moderators' questions, according to his methodology. Answers could be very short, up to 5-7 words (names of targets, reasons, factors, etc.). Also it is a moderators' task to organize brief discussions of members' answers in order to have a clear answer to everybody.

6. SITUATION CENTER

Situation center (situation room) is intended to achieve the effects of synergy and convergence. In the Situation center could be offered an information technology, satisfying conditions of purposefulness and stability of the conduction of meeting process. In the Situation center we can reach the consent in relatively quickly.

Design of the Situation center is defined most of all by the necessity of quick development of the action strategies regarding solutions of many problems. Sometimes it is considered that Situation center is a top of the information technology iceberg, which unites all the wires carrying out all necessary information for the executives. That is far from the reality. Situation center is intended to organize a working process of the collective mind of the people.

Technical problems, solvable in the Situation center are following:

- Organization of regular detection of unusual (suspicious) situations;

- Current information for executives, information and analytical support for employees;
- Support of the group expert procedures;
- Group strategic planning;
- Realization of multifactor and of expert analysis of situations on the basis of processing the geographical information;
- Revealing of problem situations in the investigated field of activity, demanding the anticipatory decision;
- Support of real time distributed teleconferences, etc.

Structure of the Situation center is designed that it is a key element of the entire organization control system infrastructure, including conditions of the constant grows of the latent information. Minimal configuration of the situation room is presented on the Fig.5.

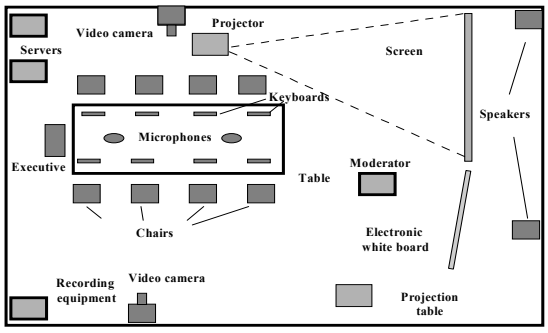

Fig. 5. Configuration of the Situation center

This configuration of the Situation center (room) allows to conduct situational control and to perform quickly group strategic analysis of the situations and to define strategic actions.

7. CONCLUSIONS

What are the main results of the strategic planning by a group of people in any organization by using the situation center? The boss gradually becomes a leader and employee receives more satisfaction from his job and a team gets much more resources for the actions. Mutually defined strategy integrates efforts of all members for getting more effective performances and diversification the busyness of their company. It educes marketing thinking for the employees and increases their motivation to efforts. Organization control is reoriented towards quality. Perspective and current activities common organization structure variations receive sense and goal.

For quick arrival to the consent of the group of people it is expediently to utilize capabilities of the Situation center, which along with common visualization technologies utilizes techniques of satisfaction of the stability and of the convergence of the processes of people coordination regarding targets and the ways of actions. Fundamental laws of thermodynamics and ill-posed problem solution methods in topological spaces could be utilized as a background of this technology.

Presented approach was verified in real practice during creation of: strategic program of complex reconstruction of the territories of the existing site development of Moscow; strategies and development concepts of: Russian market of information technologies, Russian-Israel science and innovative partnership, and also in the fields of high and professional education, public health service, social security program, housing and communal services, youth policy, religion policy of Russia's regions. Provided results were implemented successfully in development of several governmental situation centers in Russian federation and for creation of the development strategies of many commercial companies such as: Tumen Oil Company, Kursky Bearing Plant, Cheboksary Electrohardware factory, etc.

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