

Chapter 2

Changes and Inertia—Analysis and Forecast of Functional Interconnections

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Abstract *Purpose* Classification of changes in socio-economic systems, determination of reasons and the role of systems' inertia in formation of their changes' vectors. *Discussion* Changes that emerge in the system can be classified in a different way. The approach to classification depends on the objective qualities of the system and the observer's position, the role of which was studied in the previous chapter. Diversity of opinions leads to potentially unlimited number of classification features. In this work, the most general features are offered—in most cases, they are sufficient for practical actions for management of changes. *Result* The authors offer the features of classification that characterize socio-economic systems from various points of view. They include the following: public dominant, level of system, character, forms, results of changes and other attributes. The role of inertia in supporting the intra-system balance, expedient direction, and speed of changes is substantiated.

Keywords Changes in socio-economic systems · Inertia of systems
Classification of changes

JEL Classification Codes B: History of Economic Thought, Methodology, and Heterodox Approaches

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2.1 Introduction

Changes in socio-economic systems denote changes of any sort that take place over a certain period in social groups, institutes, organizations, or societies in their interrelations. Change is the most general notion that is characterized by dynamics of systems of different nature.

Changes cover a wide circle of various social changes, regardless of their direction. This notion established the very fact of changes, the fact of change in a wide sense of the word, regardless of their evaluation as positive, negative, progressive, regressive, etc. At the same time, changes and goals of the subjects that realize them are always specific. Therefore, it is necessary to determine the fact of changes and its place in the system, the block of relations that it influences.

2.2 Changes in Socio-economic Systems and Their Classification

Everything flows and nothing stays. You could not step twice into the same river.
For the river is different, and you are not the same.

Heraclitus of Ephesus

From the point of view of *public dominant*, changes are divided into:

- changes that take place in the socio-cultural sphere of society: ideology, religion, system of values, and mentality of social groups, society, and the whole epochs [1–4];
- changes in the technological sphere [5, 6];
- changes in the socio-economic sphere [7–9].

Generalization of Russian scholars' opinion on the classification features of changes in socio-economic systems [10–14] allows us to offer the following groups of changes that are significant from the point of view of their planning and realization.

From the point of view of *levels of socio-economic systems*, the following ones are distinguished:

- social (global) level—changes that influence all sphere of society (economic and technical development, political revolutions, crises, global migrations, and urbanization);
- level of large social groups—changes in social structure of society (social division, social and professional mobility);
- level of institutes and organizations—changes that take place within certain social institutes (reforms and reorganization of certain sphere of social life);

- level of interpersonal relations—change of social ties between separate individuals.

Social changes of a higher level usually lead to changes of a lower level. Changes of a lower level do not usually lead to changes at a higher level, only if these changes are not massive and do not have a cumulative character.

As to the *character* of changes, the following groups are distinguished:

- structural—changes of the systems' structure;
- functional—changes of functions of separate systems, their elements (sub-systems) and ties between them;
- processual—changes of the sphere and methods of social interaction between various socio-economic systems (institutes, organizations, and social groups);
- motivational—changes in the sphere of motivation of individual activity.

All types of social changes are interconnected, provoke each other, and, therefore, lead to constant social dynamics of society.

As to the *form*, the following processes are distinguished:

- directed;
- undirected social processes.

Directed social processes are irreversible; each following stage differs from the previous one and includes its result, and earlier stage prepares conditions for a later stage. Directed processes are divided into unidirectional, multidirectional, and graded processes.

Undirected processes are changes with a random, chaotic character, which are not based on any model or are subject to certain recurring or similar models; at that, each following stage is identical or similar to the previous ones.

As to the *results*, two types of changes are distinguished:

- morphogenetic;
- transmutational.

Morphogenetic changes are creative processes that lead to fundamental innovations, i.e., emergence of new states of the society, social structures, and conditions of society's functioning.

Transmutational changes are divided into:

- reproductive;
- transformational.

Reproductive changes are adaptive, balancing, supporting, with the character of quantitative changes.

Transformation changes are certain reproductive processes that leads to qualitative changes of the society's state.

As to the *awareness* of participants, three types of changes are distinguished:

- vivid changes, the sense and consequences of which are realized by participants;

- hidden changes, the sense of which is not realized;
- “processes-boomerangs”—social processes, the sense of which is realized by participants, but their consequences are not clear for most people.

Depending on the *moving forces that lead to the change of the socio-economic system's state* the following ones are distinguished:

- endogenous;
- exogenous.

Endogenous (moved by internal processes) ones open the potential possibilities, qualities, and tendencies that are within the changing system.

Exogenous (moved by external processes) ones are reactionary and react to a challenge, stimulus, and pressure from outside.

Depending on *time* of the duration, there are short-term, long-term, and constant changes.

Short-term changes are changes which time of duration is smaller than the time of the system's existence.

Long-term changes take place during the whole time of the object's existence.

Constant changes are the global socio-economic processes, the course of which is not related to existence of any system.

As to the *level of constancy*, changes may be viewed as:

- evolutionary;
- revolutionary;
- cyclic.

Evolutional changes in socio-economic systems are partial, gradual, stable, and constant tendencies. These may be tendencies for increase or reduction of any qualities or elements in various systems, they may acquire the upward or downward direction. Evolutional social changes possess specific internal structure and can be characterized as a certain cumulative process, i.e., the process of gradual accumulation of new elements and qualities, which leads to change of the socio-economic system.

The cumulative process (the process of accumulation) may be “divided” into to sub-processes: formation of innovations (new elements) and their selection. Innovation is emergence and establishment of new elements. Selection in a system allows preserving new elements and losing old elements.

Evolutional changes can be consciously organized. In such cases, they acquire a form of reforms that are conducted by governments, government bodies, and companies' management. Still, they can be a spontaneous process which takes place all by itself.

Revolutionary changes are [15] systemic changes in the organizational life. L. Greiner notes close connection between evolutionary and revolutionary changes. Thus, with successive passing of the stages of development, each evolutional period creates a typical revolution.

Cyclic changes. This is a more complex form of changes, as it may contain evolutionary and revolutionary changes, as well as upward and downward tendencies. Besides, cyclic changes are not separate acts of changes, but a range of changes which creates a cycle.

Cycles are a totality of processes, the sequence of which is a certain turnover over a certain period of time. The final point of the cycle repeats the initial one not only on other conditions but also at another level. In the simplest form, cyclic changes are a rhythm, i.e., recurrence of the periods of growth and crisis over certain periods of time.

Different structures, various phenomena and processes in society have cycles with different duration, which makes the picture of cyclic changes very complicated. That's why in each moment of history, there are sub-systems, phenomena, and processes that are at different levels of their cycle's development. This determines a complex character of interaction between them, mutual mismatches, and conflicts.

2.3 Inertia of Socio-economic Systems and Its Use in the Process of Changes Planning

You can base only on that which fights

Blaise Pascal

According to one of versions [16], inertia of socio-economic systems is a consequence of the selection process, the result of ecological and evolutionary process. At that, the processes of selection are good for the companies which structures are very difficult to change.

A lot of wide classes of organizations take inertial pressure, which emerges due to internal orders (e.g., internal rules of a company) and external environment (e.g., legitimacy of organization's activity in the public eyes).

The factors of internal orders, which lead to inertia, include the following:

- irreversible expenditures for production objects, equipment, and personnel;
- dynamics of development of political coalitions;
- tendencies for creation of normatives on the basis of separate precedents.

The factors of external environment include the following:

- legal or other barriers at the entrance to any sphere of activity and at the exit from it;
- relations of exchange with other organizations;
- danger of losing the legitimacy of organization's activity;
- danger of losing the institutional support.

Evolutional theories in biology suppose that the adaptive value of the performed innovations of the organizational nature is determined randomly. Innovations appear not because they are useful but because they just appear. If the innovation stimulates survival, it is preserved and distributed in the population.

There's a statement in the socio-economic sphere that social evolution acts purposefully, as people study and include studies into the set of their behavioral characteristics. In other words, changes take place within the existing subjects.

From the point of view of adaptation, human actions may be considered random while in the external environment the uncertainty is high or the ties between the goals and means of their achievement are not clear. In the conditions of high uncertainty of external environment, the efforts of separate subjects to adapt may be random from the point of view of their future value.

Evolution can have the purposeful character in two cases:

- people predict the future very well;
- organization's activity reflects the purposes of rationally thinking leaders.

Even with a high level of precision of forecasts, the results of organizations' activity may differ from personal purposes, including those of the leaders. Organizations often continue to live their own life. The problem consists in determining whether the organization can study and plan the actions for an indefinite period.

Weak connection between personal purposes and consequences for the organization are caused by at least two factors:

- difference of organization's members' interests;
- uncertainty of connection between the purposes and means of their achievement.

If the interests of the organization's members are different, the consequences of their actions for the organization depend on internal political situation and the balance of power between the persons who make decisions. In such case, it is impossible to state that the organization adapts to the external environment. The developed measures for adaptation may lead to unexpected consequences. Besides, short-term results may differ from the long-term ones. In other words, there are no reasons to suppose that the intentions for adaptation and actual results are necessarily coordinated.

The most important issues of adaptation of organizations [16], are related to the choice of time for the changes. Organization's studying and adapting increases the chances for survival only when the speed of reaction corresponds to the time structure of the existing external environment.

An example of violation of such condition is M. Fridman's view on the attempt of state regulation of economic cycles. According to him, the state's actions are always late. As a result, instead of leveling of cycles, the amplitude of cyclic fluctuations grows, and the phases of the economic cycle are not well-balanced.

The worst variant of changes is to produce changes, realizing that external environment requires new reorganization.

Inertia of organizations means that they react to emergence of threats and possibilities in external environment very slowly, i.e., the speed of reorganization is below the speed of external conditions' change.

One of the threats for organizations that possess high inertia is emergence of new organizations specially created for using the new possibilities. If the expenditures of various resources (including time, space, financial, etc.) for creation of such organizations are low, the threats for the organization are high.

According to Hannan and Freeman [16], the constantly existing organization possesses an advantage during execution of one complex collection action. In the world, which is full of uncertainty, the organization reduces its level for all related persons—it is more reliable than, say, a project group.

Let us recall the types of systems which include organizations and projects. The former present an object type with unlimited time resource, the latter present an object type with limited time and space resources.

Reliability depends largely on the level of changeability of results of various organizations, not on the average level.

The current reliability of organization, as compared to project groups, means that the random result, selected from the population of organizations, is peculiar for lesser dispersion than the result that is randomly selected from the populations of another type.

Time reliability means that fluctuations of the quality of result will be lower for organizations than for the project groups.

On the whole, a peculiar competence of organization is its capability to perform the collective actions with relatively low fluctuations of quality.

Besides, organizations' behavior is demonstrative in the aspect of setting the procedural rationality and accountancy for intermediaries. Accountancy is especially important when:

- organizations manufacture information products (educational services);
- organization's activity is related to risk (medical services);
- long-term relations between the organization, customers, and employees are developed.
- organization's goals are politically-oriented.

The modern society favors the organizations that can show reliability and capability to rationally account for their actions.

As a result—organizations prefer to work with each other, not with the subjects or another organizational status (e.g., individuals). *Though, at present, this rule is not that strict.*

Insecurity and failures in accounting threaten the organization's capability to support the members and participants' loyalty, and, therefore, limit the possibility of receipt of additional resources.

The requirements of reliability and accounting lead to the relative constancy of organization's reproduction through the processes of institutionalization and creation of standard routines.

Institutionalization reduces the transaction costs during interaction between the internal sub-systems of the organization. The attitude to the purposes of organization and relations between the power and subjection become the behavioral norm. Inertia is formed—the same factors that ensure sustainable reproduction of organization and make it oppose the changes.

In particular, when the organization is evaluated as such, the changes in agreements are based largely on the moral and political ideas than on the methods of solving the organizational problems. That's why the efforts to change the organization on the basis of moral and political requirements inevitable lead to emergence of opposition that strives to preserve status quo. If opposition cannot achieve success, the process of changes will seem slow.

The organization possesses a certain set of knowledge, fixed in routines—the most collective actions that are performed by memory. When a routine is formed, the action is memorized. The organizations that use a wide set of routines always invest resources for their support. Routines are reproduced together with the organization in the process of execution of any action.

That's why organizations and their sub-systems oppose the planned and unplanned changes.

High level of inertia may become a reason of mismatch between the results of the organization and expectations of its members and customers that emerge in the changing external environment. In this case, inertia may weaken the organization's position.

At the same time, organizations that try to perform individual changes can reduce the volume of resources and reduce the chances for survival. In this case, not only the capability to change but the capability to reproduce will fail. Opposition to changes and inertia are the second aspect of the capability to reproduce the system with a high level of precision.

It should be noted that establishment of certain institutions and routines within the organization that predetermine inertia is a result of the previous selection. That's why pressure of environment should be sufficiently strong for destroying the ties that have formed in the conditions of selection.

It should be taken into account that various aspects of organization's activity are subject to changes to a different degree and, therefore, have different inertia.

It is more difficult to change the core of organization than the structure's peripheral parts. Parsons [17] distinguishes three levels of power hierarchy in the organization's structure:

- technical;
- managerial;
- institutional.

Technical level is a part of the system that processes the materials used. The resources, used by a technical system, are distributed by a wide organizational machine, by the managerial or administrative system during realization of the organization's basic activity—which compares the organization's activity to the society's interests.

The managerial level controls and serves the operations of the technical level. The reverse is very rare.

Institutional system ties the organization to society and is responsible for the long-term policy and organization's management for the purpose of achieving the set goals.

As the institutional and managerial levels have advantages before the technical level in the sphere of control of the flow of resources, any change of their activity leads to the changes of the technical level. The reverse is very rare.

The layers are characterized by various speed of reaction to the changes of external environment.

Organizations are to protect the structural units that constitute the main production. At that, the core is represented by technological departments. M. Hannan and J. Freeman classify structural units as to their value for mobilization of resources:

- the set goals, with the help of which the organization receives acknowledgment and other resources;
- forms of power within the organization as a basis of interaction between the members and the organization;
- the key technology, coded in capital investments, infrastructure, and qualification of personnel;
- marketing strategy and in a wide sense—types of customers at which the products and the means of attracting the resources from the external environment are aimed.

The set goals are the toughest—they are least subject to changes; the weakest limitations are marketing ones.

The initial configuration of these four parameters of the organization sets a certain long-term strategy. When the organization began open mobilization of resources, invested into physical and human capital of a certain type, and developed a product or service that is attractive for certain audience, it narrowed down the set of accessible transformations.

Organizations can change these parameters—however, they are expensive and put the organization under large threat.

Apart from the above levels, such parameters of organization as quantity and size of departments, age, and structure of communications are important.

Various types of exchange with the subjects of external environment are more flexible and subject to changes than the core's structures. The core's inertia is much more vivid, as compared to the peripheral areas.

2.4 Conclusions and Recommendations

Changes are always specific, so it is necessary to classify the changes as to the features that determine significant characteristics of changes.

The most significant attributes that characterize changes include the following: levels of socio-economic systems; character of changes, forms, results, level of participants' awareness, moving forces, time of deployment, and level of constancy.

Any systems have various levels of inertia due to the internal orders and conditions of the external environment.

The most significant factors of the internal order that cause inertia: irreversible expenditures for production objects; political coalitions; normatives of technical and technological and socio-economic character; informal institutes.

The factors of inertia of the external environment: legal and other barriers at the entrance to any sphere of activity and at the exit from it; relations of exchange with other systems; danger of losing the legitimacy of organization's activity; danger of losing the institutional support.

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