

The Transition to Democracy in Bulgaria: Much-Needed Reforms, Showed by AI-Approach, AI-Methodology and AI-Cognitive G-Space Architecture

Georgi Goshev

Assoc. Prof. Dr., Management Consultant. Sofia, Bulgaria,

Abstract

In this paper we review the leading barrier to democratic change - societies' limited command of democratic principles and practices and the lack of built-in device in the authority for mechanisms of civil control in democratic rule of law. Main contribution of this work is the illustrative example of the capabilities developed by Goshev & Goshev AI-tools: AI-approach, AI-methodology and AI-cognitive G-space architecture to improve the legal and statutory mechanisms of power. Below are elaborated comprehensive measures focused on the success of the transition to democracy. These measures include: a. A complete overhaul of the status-quo in education in democracy. Particularly, the existing cursory, unsystematic, and primarily targeted to children and youth educational patch-work would be replaced by a structured, comprehensive and all-inclusive progressively graduated educational system b. An exhaustive reform of the legislative base. This reform would be more comprehensive and rigorous than reforms mandated as part of EU integration/membership. Specifically, the reform would involve development of logically complete and consistent context-specific designs of democratic legal systems and institutions, their testing and writing into legislation c. Development of mechanisms for permanent monitoring and improvement of the legal system and state governance. Mechanisms of such type would provide for early detection and swift rectification of practices inconsistent with the values and norms of democracy.

Keywords: Transition to democracy; AI-approach; AI-methodology; and AI-cognitive G-space architecture

Introduction

In a fairly long period of time a number of researches about the problems of democratic development were published. The numerous papers and books, fed up with pessimistic scenarios about future of democracy, must have been very disturbing for the global democratic community. Equally disturbing is the possibility of recurrence of authoritarian and totalitarian regimes under the flag of in fact deceptive democracy. The analysis of the transition countries in Central and Eastern Europe and the attempted democratization of the regimes in the Arab Spring, seriously suggest a need for a new qualitatively different approach for transition to a democratic social order.

Tracing the origin and development of the democratic process in the leading democracies in the world, we see the following picture:

In England and America democracy was the result of naturally occurred public attitudes and social practices, proclaimed and legalized through documents. This way these countries entered into their own way of setting up a democratic civil society. In the next period, democratic practices and public device management were improved in terms of several critical areas: a safeguards protecting the individual rights were introduced to the legal system along with independent judiciary, thus realizing democratic judicial procedures and market regulation of economic relations. This was accompanied with development of the market infrastructure and education.

Magna Carta (1215), The Declaration of Independence (July 4, 1776), and the US Constitution, as documents constituting these public device management were created and adopted by people with a democratic mindset which allow them to lay down the principles of a democratic society. Fathers of Democracy, declared democracy, such as public policy, and then for many years they built into public device.

All these took enormous amount of time. But in today's rapidly changing socio-economic environment, time is deficit and the old public device management need an update. These facts, lead us, to the conclusion that the time has come for serious human interference in the democratic process in order to improve the democratic public device management. It is necessary to mobilize our significant scientific potential and to use the human knowledge and technology in all areas to improve the public device management mechanisms in order to be able to ensure optimal and socially efficient functioning of the social system in the spirit of democracy and protection of human rights. We see an opportunity to implement AI approach for constructing democratic mechanisms and democratic social practices. We see an opportunity to use of constructive methods for designing democratic legal systems and designing the organization and functioning of the three independent authorities.

This article presents the results of qualitatively new approach, philosophy and AI-tools such as cognitive G-space architecture. Their use permits designing of logically complete, consistent and efficient normative systems and Social Practices, as a descriptive model – constructed as an artifact. Such normative systems establish regulating mechanisms and procedures, incomparably broader than the familiar interpretations of the 2000 year Roman slave law.

By the created by Goshev & Goshev toolkit and constructive theory, can not only legislating occurred social practices of democracy, as Magna Carta 1215 in England , and American Declaration of Independence July 4, 1776 . The toolkit and constructive theory is use to build the elements of natural law and morality, in to the legal mechanisms and to design (constructed as an artifact) legal systems and social practices. These organizational systems and control mechanisms are much more sophisticated than the existing ones, as these constructions include also the logic of:

mechanisms and procedures of: Decision Theory; Game Theory; Theory of Auctions; Organizational Theory; Control theory; Cybernetics;

new models of regulating the distribution and exchange of goods and services; financial regulation; banking regulation;

models of psychology and modern methods of content analysis and sociology.

The proposed toolkit allows a radical change in the approach for creating legal systems. We are not guided by the principle that "Everything that is not forbidden is allowed", and we are not trying to "make a fence" by the norms of material law. Instead, following the logic of AI-approach, allows us to build in decision procedures, democratic criteria respecting the rights of all persons. These decision procedures are a logical standard for creation of procedures reflecting the specifics of the particular case.

The approach contains requirement for the decision procedures. They in no way should create conditions for further undemocratically regulated relations. This is achieved by tracking examination of potential deviations from democratic criterion defined as a standard by procedures of distributive and retributive justice. This monitoring should be available, for every person, affected by the distorted application of legal procedures. Every affected, must be able to start, prompt and effect action to implement a procedure for violations prevention. So the approach not only imposes restrictions on the possibility of totalitarian or authoritarian relapse, but also ensures sustainable development of the democratic process.

The created powerful toolkit, allows us to design organization of society and public device management as well as structural and procedural rules for the mechanisms and operation of all authorities. This way they can be constructed as really independent from one another and subtle mechanisms differentiating their powers and interaction to be created.

This article examines the structural elements of the social structure, distinguishing design features of the transition, and raises issues related to creating the necessary structures and mechanisms implementing and ensuring the realization of the principles of democratic civil society. These principles require respect to the rights of every citizen, as declared in the International Charter for the Protection of Human Rights and accepted as universal values of civilized humanity.

The approach and logical structure shown in this article were made possible as a result of the implementation of the developed by Goshev & Goshev AI-approach; AI-methodology; and AI-cognitive, G-space architecture.

Model of the social structure

The structural scheme of any social model or a regulatory mechanism no matter its scale covers at least two main channels carrying out its function. These two channels can be accepted as regulatory. They are:

Channel naturally occurring structure of the regulatory scheme - such as market regulation, various schemes shown in trade theory, game theory, etc. with varieties and stock exchange regulation, different interpretations and all ending with OUTCOMES, which are identified by certain parameters or variables, including quantitative expressions imbedded in the descriptions of channels – material substantial or financial flows.

Correcting channel of social decisions, taken by persons authorized under the structure of society to represent average citizens in their multitude, as a barrier against the pressure of money and the requirement of effectiveness on the vital personal interests and rights of citizens. These social corrective solutions are mandatory correction of decisions in the other channel and are required to be met by natural and legal persons and authorities.

According to the regulatory effects of the two channels and their weight in the regulatory outcome - the operation of public device, can distinguish two polar and an intermediate circuits.:

When the regulation is implemented through the channel of social solutions - it inevitably degenerates into polar diagram of authoritarian or totalitarian regime;

When the regulation is implemented canal regulatory scheme of material - material or financial flows - regulation of type free market "Lesse fair lesse pace", free market economy, it can degenerate into polar scheme fetishization profit and efficiency, dominant more than subjective judgments of people and destroying the ability to control their social price.

Democratic social order is implemented in the intermediate scheme, a metered for optimal socio-efficient operation, simultaneous impact on both channels.

Much-needed reforms

An analysis of recent events as finance and economic system of the leading countries in the world with democratic social order, using AI- toolkit G-space - Visualization of financial and arising from its general crisis in the economy leads to the following general conclusion: The crisis was caused deliberately and is associated with poor legal system: regulation / deregulation

Those who demand deregulation are right that the regulation restricts the initiative of persons to achieve better results from their activities. On the other hand, demanding regulation are right in their request for limiting the possibility of using freedom from regulation for taking actions inconsistent with the public understanding of the correct action that benefit society.

It can be concluded that the measure of the socially necessary and optimizing results from the activity regulation/deregulation is determinable. This is done by dividing into "golden section" the buffer interval regulation/deregulation, which is similar to zone in the hysteresis loop. From all this follows a lack of reliable protective regulatory mechanisms, responding in predetermined situations. This is so in a number of stages of implementing the functioning, development and control of the vital activity of managing the economy through control of financial instruments, flows and investment policy.

As an analysis of the facts in the movie "Inside Job" to Charles Ferguson, can be determined deficiencies of legislation in the US Regulators regulating mechanisms allowed to happen this crisis. Using this analysis we can seriously narrow the uncertainty regarding the type, logic and certain features of the controller, which must be designed. And it is therefore essential to ensure a procedure applied by those concerned when they find the conditions laid down.

Similar problems are found in the analysis of regulators of public devices in countries in transition.

While the countries with established democratic traditions can achieve focused, suspension of the operation of regulators, designed to prevent illegal conduct and results, it is clear that for countries with fragile civil society in lack of well-developed legal system and flawlessly existing regulatory mechanisms such situations simply can be accepted as the status quo, destructive to the process of democratization.

This requires general conclusion that extensive changes are needed in the design of regulatory mechanism embedded in the legal systems. These regulators need to be with a high sensitivity, regarding deviations from the specified function of public device, or deviations in its components, respectively the deviations implemented by the subsystems of the public device.

Particular attention should be paid to the legal systems of the countries in transition. The classic scheme: the organization of free elections in which supposedly guaranteeing the free expression of will by participating, selecting representatives to the governing authorities and inventing new statutes is definitely ineffective for countries experienced heavy totalitarian period.

Expecting that created by the new statutes management will be of a democratic type is naive and unrealistic. The reason is that these Detailed Structure laws are created and adopted by the people, for the most part, if not overwhelming - beneficiaries of the old regime that not only have sufficient inertia in thinking, but do not know the democratic decision making procedures related to social practices.

Designed legal systems must be designed as mechanisms of decision. In that mechanisms must be build precise procedures limiting deviations to the field of well known old manipulative methods of violence

They must be designed standard mechanisms assembled in standard social practices in the most sensitive in terms of totalitarian relapse areas.

These are important areas of public democratic social mechanism (device): structure and procedures of the constitution and organization of the three branches of government, as independent; procedures of selection of people in positions of public and polity;

These are important areas of public democratic :

Distribution procedures: allocation of resources (procedures of lease of state and municipal property, allocation of resources (concessions and restrictions);

Procedures of market regulation, auctions, exchanges commodity markets, regulation of financial relationships and resources;

Procedures protection of private property; procedures of security; procedures healthcare procedures on freedom of speech, wills and individual human rights. procedures and mechanisms of environmental protection and biodiversity.

This analysis shows that the problems of the development of democracy have a different character in different countries, but we believe, that the problems require application of modern achievements of science and serious work of research, analysis and design of structures of democratic devices.

For the decision of such problems are designed AI-approach, AI-methodology and AI-cognitive G-space architecture, as a AI-toolkit.

Overcoming complexity

The legal system is extremely complex. Extremely complex are also its components: those constituting the state and public structure, those regulating social practices and the mechanisms of their realisation, and those regulating social relations. The complexity of the legal system is also conditioned by the extremely complicated interrelated and all-embracing mechanism that puts into effect a function, which must motivate the natural and legal persons in society in all their actions. And in order to put into effect a motivational influence, the legal system must be described and presented by means of information, which is comprehensible and approachable for all natural and legal persons, in a natural language.

This complexity is a challenge for the professionals who participate in the processes of legislation and law enforcement. Errors, such as abbreviations, inconsistencies, ambiguous provisions in the law systems, and inconsistent rulings in cases which share the same established case-law logic, made by different formations of the court, are an indication of the fact that the complexity of the regulatory systems probably exceeds the human capacity for comprehending them.

The enormous volume of texts and linguistic structures of legal mechanisms and procedures, in many cases built in mixed, propositional and predicate logic, additionally greatly complicates comprehension.

The mechanisms and social practices of organisation, management and control over society are of at least the same degree of complexity as the most complex systems in biology and technology. But whereas in each of these fields there exists a specialised formal system for description, visualisation and calculation, the experts in the field of jurisprudence do not have

at their disposal a formal system which compensates, illustrates and logically “calculates” regulatory systems in a way that is convenient to understand and work with.

G-space allows overcoming the complexity in the analysis, construction and application of regulation systems. It is a means (a tool) for the creation of G-models, which visualise the logic built in the regulation systems.

Overcoming complexity through the use of G-space, on the other hand, allows the research and creation of analytical and design methods united by joint methodology and technology for the creation of logically sound and unambiguous models of regulatory systems, and the stipulation of correct administrative, judicial and legislative acts.

AI approach, AI law-orientated methodology and G-space¹ philosophy

The study² which led to the creation of the AI approach, AI Law-orientated methodology and G-space philosophy is based on the wide understanding of human activity, such as: perception, decision, and influence, within two parallel contours. One of them – human activity aimed at the alteration of a given object from the surrounding world; and the second parallel contour – human activity aimed at altering one's own knowledge, algorithms of thinking, and facts.

In both contours the subject of human activity creates a picture of the surrounding world designed for simulation thus helping the actions leading to the desired alterations and events chosen by a person are revealed: of the alteration of a specific object in the surrounding world, as well as of alterations in the person's own knowledge – algorithms of thinking and facts³.

In order for the desired results to be achieved through experiments based on simulation (which includes serious games) carried out for the purpose of choosing goals, strategies, amendments of regulation limitations, optimisation and structure, organisation and technology, the created Abstract picture must correspond to the object under study.

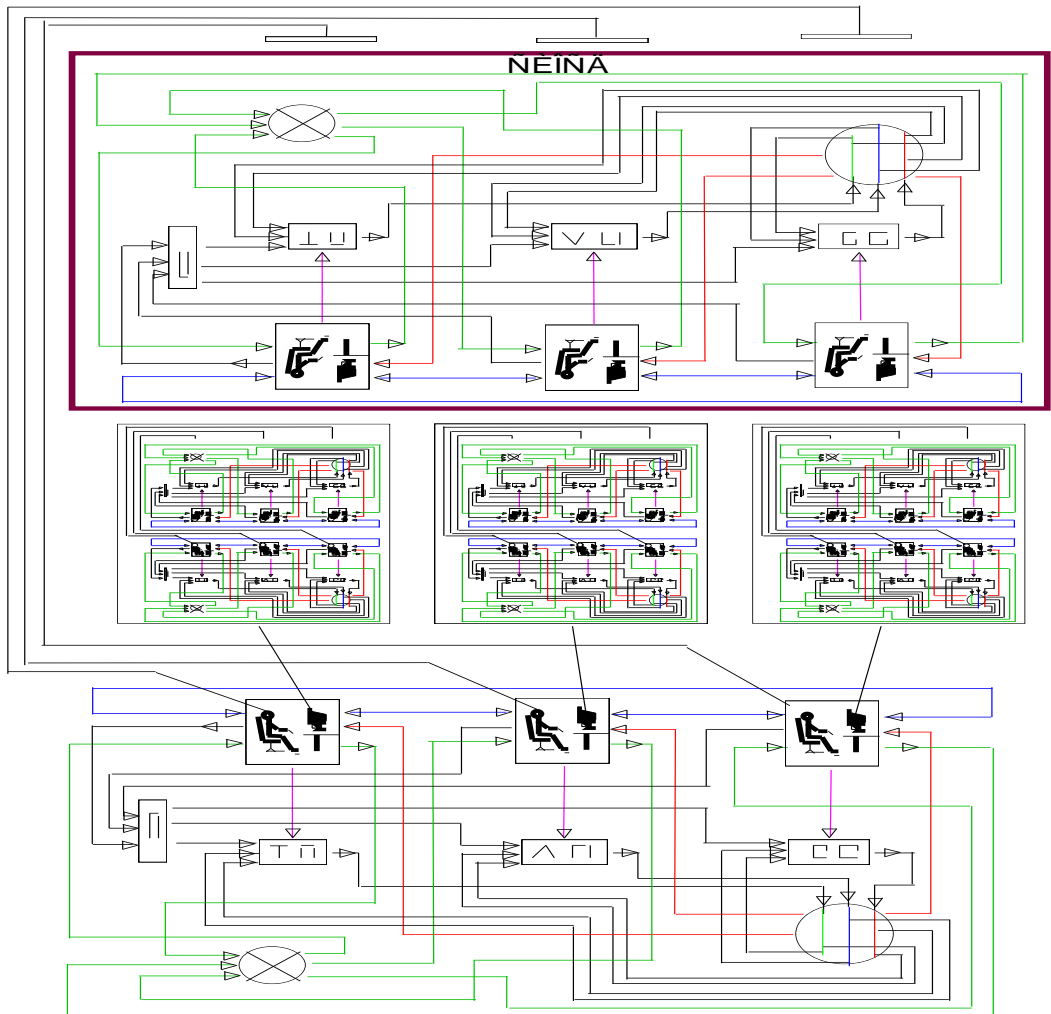
But this does not mean that it is necessary to have the most detailed and complete “snapshot” of the object, complete with all relationships and influences in it, and with all relationships with the surrounding world and its influences over the object. In other words, the object must be presented as a “snapshot”-interpretation of the surrounding world with a focus on the object under study.

If we assume that the tool for creating that “snapshot” is a reflecting sphere (like the one in Escher's lithograph print), and in the snapshot – a reflection of the surrounding world, there could be “separated” and highly magnified, and zoomed in on (as with a magnifying glass) with a high degree of detail, the picture of a specific object in the snapshot – the object of study for the analyst-researcher; as well as a picture of the natural person who is in the studied object – or in other words, the analyst-constructor. Thus the mental model – the picture for experiments based on simulation, must be constructed as being a “world-like” model that involves an active human presence.

The creation of a world-like model with a focus on fundamental acts of the regulatory system presupposes studying the object-society, and the models of the decisions made in society, presented as a mechanism. The model for this mechanism involves: society (presented as a socio-economic unit (social device) – an organisational mechanism); interpreted as a system - as a structure and function. On a lower level of detail, the organisational mechanism is viewed as natural and legal persons connected by relationships and performing appropriate activity, which could be interpreted as perception, decision and action, in its two manifestations: thought and consequences in the surrounding world.

The appropriate activity (thinking), is realised in the conditions of a regulatory system as something that motivates, regulates and limits the actions of natural and legal persons. The mechanism of motivation and the mechanism that regulates the resolution of social relationships are part of the mechanism of thinking, which realises the perception, decision and action of every natural person, and part of the mechanism, which integrates the results of the thinking of natural persons who form a legal person.

The algorithms of perception, decision and action through which the modelling of everything described so far is accomplished, are similar to cognitive architecture – a network of a connectionist type.



A structural model of social device with built-in levels: perception, decision, impact

AI approach

A researcher who follows the AI-approach is oriented towards an extended object of study, which contains “object of study – toolkit – subject of study”. The extended object is a result of the constant tendency to deepen scientific research toward ever more detailed study of the object, and ever more precise and comprehensive results in terms of illustration.

The presented: by Louis de Broglie new and completely different from classical physics field of knowledge – quantum mechanics; by Heisenberg – the possibility for a significant distortion of the result caused by the tool of research; and by Hofstadter – the peculiarities of the human perception of the world, are the reasons for rethinking the approaches and methods of scientific research.

This is also a reason for extending the object of research for the purpose of creating a model for “world-like” experiments by simulation with an active human presence. The extended object already contains not only the “classical object” - the motivational regulatory system, but also the toolkit – the research methods and models of analysis, modelling and construction; and the picture – a result of the research toolkit and the specific human characteristics.

By defining this extended object, in which the motivational regulatory system is part of the mechanism that performs an appropriate activity, a structure of logic that corresponds to the philosophy presented in this article is created absolutely deliberately and purposefully.

Every person studies (creates logical models or thoughts) the way the motivational regulatory system influences his/her process of appropriate activity, and what the requirements that the motivational regulatory system must fulfil are, in order to motivate the subject under motivation to take actions so that to realise results, to achieve aims given to it from the outside and/or generated by itself. The analysis of the logical structure outlined, which describes the extended object, is of the "expanding nodes" type by D. Hofstadter, and unambiguously presents the direction of research as being in the AI field, and the approach itself as an AI approach.

The following are accepted, in terms of structure, as a specific extended object of study in the systemic interpretation: "the surrounding world – tool of decision-making – subject", in which the element "tool of decision-making" includes the motivational regulatory system; and in terms of function, "meaningful human activity" as a model of the research process "perception – decision – impact", realised both in the structure, and by the elements of the structure.

The AI approach of overcoming the complexity of the legal rule system is completely different from the classical approaches in jurisprudence and social sciences. By means of this approach one could search for, identify and apply in the construction of the models for simulation the lowest level of detail elements (atomic frames, according to Marvin Minsky) of the object's image (the world through the filter of the limiting conditions of the knowledge about it, and the goals defined). By altering the elements or altering the connections, and therefore the configuration in which they are connected, the motivation that conditions an alteration in the function, or action, of the subject under motivation, is also altered.

We are looking for a picture of elements on the lowest (atomic) level of detail in order to avoid possible errors, inconsistencies or ambiguities in the creation of logical models and the description of legal rules. As well as to remove the possibility of overcoming bans and limitations defined by the legal rule through "going down" to lower levels of detail of the logical models, and the creation of "bypasses" to limitations by "hackers" whenever the level of the legal rule is lower than that of the atomic level.

But in order to make such a textual description, in natural language, of the picture on the motivational regulatory system's highest atomic level is even more difficult than the classical description, with a much bigger volume and more excruciatingly complex.

But precisely the systemic identification to a high level of detail (an approach in technical sciences), which allows schematic interpretation (as in Jay Forrester – the models) of the content and logic of the text is the necessary prerequisite for the next decisive step toward overcoming complexity.

The next step toward overcoming complexity is a schematic interpretation called G-model, which was created by applying cognitive G-space architecture.

G-model benefits the researcher with an additional advantage to classical schemes. G-model allows the visualisation and compensation of information which describes the model of a rule the way it is done by means of analogue transformer models, but also allows its presentation in a picture made up of sequentially ordered fragments, as a procedure.

The display of the specified fragments in a picture allows for the extremely easy diagnostics of errors, omissions and ambiguities. (It plays the role of a scanner).

By visualising a text using natural language, in the classical scheme of the analogue transformer type, what is achieved is compression of the information down to two digits, but this is completely insufficient for overcoming the complexity of the logical model and describing the motivational regulatory system to a satisfactory extent.

The means for radically overcoming a legal act–law system' analysis complexity is G-model. G-model overcomes the complexity of a legal act to the level of complexity of checking for the isomorphic correspondence of logical configurations of the structure. Applying the principle ingredients is carried out following execution of that operation in a text of up to half an A4 page. The successive addition of fragments or ordering (structuring), processing, checking and typing in of text from a complex legal act – law system (laws, codices, etc.) in G-space following a specific algorithm by a person is accepted by the creators of cognitive architecture* as being a type of thinking

In order to reach to a G-model and to test the logical structure in a text or symbol-based format, one has to go through three stages, fragment by fragment:

The first stage is systemic identification of the world, together with man and everything that he reflects, including the influence of everyone and everything around him and in him, or a world-like (world-similar) model, as a system with active human participation, or as a socio-economic unit.

The second stage is identification, adaptation and construction of a toolkit for analysis and construction of motivational regulatory system models.

The third stage is applying the toolkit for reengineering or construction of motivational regulatory systems.

The AI-approach is integral and is created so that it can combine selected advantages of already existing approaches from the different branches of the scientific AI field:

and the modelling of mental processes (the functioning) in the human brain, Cybernetics and brain simulation – structural modelling and visualisation and Symbolic AI – manipulation through symbols of the information from the person and the surrounding world, which is presented formally by means of mathematical (incl. Logical) relations;

and Cognitive simulation – simulating the techniques which people use for solving problems (cognitive architectures).

The AI approach described in this article follows the logic of Cognitive simulation. But not realised (Cognitive simulation) in formally presented, but over structurally presented, logical structures (in a map or a picture, or a scheme with pictographic symbols, or in the shape of tables that contain textual data).

The following processes are also structurally presented: perception; decision making; and influence (also educational), in models built upon the logic of cybernetic-type mechanisms (input-output transformations with a built-in automation). And not for brain simulation, but for symbolic representation, which is, however, realised through “structural” manipulation of the information resulting from the research of the relation “person – surrounding world”.

Or simulating human thought in a structural aspect – through a world-like model. The structural manipulation of information resulting from the research of the relation “person – surrounding world” is defined as thinking.

The approach is holistic and leads to the construction of a “world-like” model. This model reflects the picture of the object detailed to the level necessary for analysis and construction, interpreted as a mechanism (motivational), and committed to the “shrunk” around it, compressed surrounding world.

Thus the object of analysis is the part of the correlated picture “surrounding world”, together with the object “magnified” through a conditional magnifying glass (depending on the interests of the analyst-constructor), which allows the identification of the necessary level of detail of the structure, elements and relationships assembled into the object.

Methodology. Methods for identification and analysis of social device.

For the identification and analysis and construction of a world-like model, it is necessary to combine approaches and methods from different fields of knowledge, and build them into a methodology.

In the presented methodology, built-in are the methods of the systemic approach, combined with cascading identification, in order to achieve decomposition of the system on a higher level, and on a lower level of sub-systemic elements, which allows the identification of graphs of elements to which there are respective graphs of functional elements (the steps into which the process-describing procedure is broken) and graphs of element characteristics.

In the analysis of the systemically identified world-like model (system with an active human presence) analytical methods of mathematical description and the methods of structural and analogue modelling are used

Social device, interpreted as a structure – a structural model of appropriate activity, which realises the function “appropriate activity”, is described by a simultaneous equation presented in the model of the function of social device.

This model presented as a functional structure (in which elements are operations defined as steps of a procedure of appropriate activity, which accomplishes a decision, visualises key characteristics of social device: multi-contours and multi-correlations.

And though the analysis of the structural interpretation of the function of social device by means of structurally interpreted stages of appropriate activity: perception, making of a decision (also an object of AI) – as a model of appropriate activity, which accomplishes motivation, the key characteristics of isomorphism, recursion and multiple planes are achieved.

As a result of the application of mathematical, social science and technical cybernetics methods, a characteristic that defines the type of systemic structure in which appropriate activity is realised – a Kalman filter or a tracking system, is found through the analysis of simultaneous equation of appropriate activity. This characteristic can be interpreted through the use of terms from the motivational regulatory system as a criterion for quality assessment of the motivational regulatory system.

The methods of cognitive science are applied in the analysis of the structural model of perception, making decisions and taking action, in which the filter of limiting conditions and aims is identified and analysed as a separate object.

This filter contains the motivational regulatory system, limiting conditions from the surrounding world, including the actions of all factors that do not depend on the subject. It transforms the information coming from the surrounding world by assembling it into an image of the subject's decision.

By introducing the filter (similarly to introducing the toolkit into the extended object of the AI approach), two important results are accomplished. One is the possibility for “descending” to the levels of detail, where the elements that construct the motivational model are located, and the construction of the motivational model itself.

The other is a cognitive picture, of a holistic type, of the integrated influences of the surrounding world and the person in an isomorphic-recursive interpretation, and opening opportunities for transitions and a language of translation between levels of differing nature, described in languages which until now did not have translation dictionaries.

The indeterminacy of time and space are overcome in the process of social device analysis by means of two-way substitutions on structural levels, and structurally presented functional levels applied on a cascading scale. That indeterminacy is a result of the impossibility to show proof of the finiteness or infiniteness of space, and a similar impossibility concerning time, and creates modelling problems.

Methods for identification and adaptation of toolkits

In the process of identification and adaptation of a toolkit for analysis and construction of world-like motivational regulatory system models, the following must be overcome: the paradoxes of systemic thinking; the indefiniteness of the limitation of one's own knowledge; and the issues of incompleteness – in order to fulfil the requirements of Whitehead-Russell in the Theory of types, and to cope with Russell's paradox.

Another problem, although not of the same rank, is the creation of typological networks of elements, of relationships, of configurations, and their respective typological networks of characteristics.

The paradoxes of systemic thinking are overcome through a holistic approach and adapted to the specifics of the studied object methods of cognitive science based on the definition of the object as a picture of the world-like model – a result of a recursive isomorphism between the world and the natural person in it.

The problems of incompleteness find their solution as a presentation of a logical structure in predicate logic on a higher level in the fields of G-space⁵, transformed through isomorphism from the respective logical structure described by propositional logic on the respective lower level.

Typological networks are a result of the application of the superposition of isomorphisms principle, ordered in a sequence, encompassing the full spectrum: from order of reflection to object of influence of the regulations⁴.

By extending the structural isomorphism of Bertalanffy the possibility for shrinking the surrounding world into a systemic world-like structure, which possesses the characteristics of a picture is achieved – result of the intellect of the researcher.

Based on extended Bertalanffy's structural isomorphism is also the filter for transition (“translation dictionary”) among different description languages on the different levels.

The principle of the Principle of the relatively positioned observer⁵ allows the picture of the world to be closed together with the observer, and for the images to be observed overcoming spatial relativity and to work with the ideal (mental) model of the world, together with the observer within it. The layering of the object in the graphic construction by using G-space

creates conditions and completes the requirement for coping with Russell's paradox (Theory of Types). The transition as "a process taking place at a time – procedure" is also a manifestation of the transition of propositional into predicate logic demonstrated as a proof of Gödel's theorem of incompleteness (of the arithmetics and the completeness of the calculation of predicates).

Methods for construction of intelligent legal models

For the creation of an object-oriented semantic network of words or a table of codes for the correspondence between words and elements – symbols of: the structurally active (person) and passive (all the rest) and functional frames describing social device what are used are combined methods of modelling and the creation of networks.

It is compulsory for the building of a semantic network that the relationships between elements, for which an atomic level is strictly required, to be numbered in the sequence of chronology of the systemic actions, part of the motivational regulatory system.

The object-oriented semantic network, by necessity resulting from a larger volume and a more complicated solutions of social relations, can be built by the elements which possess phenotypical characteristics that define them as belonging to each and every one of the structures on each level.

In realising G-space, it is necessary to go through an analysis of the contours of realising the motivation and regulation of actions on the multi-level stages of management.

Last but not least, for the successful realisation or re-engineering of the motivational regulatory system is determining the channels for regulating the schemes in which the regulating mechanism types are configured, as well as for testing the regulation mechanisms for efficiency and level of goal realisation.

The presented methodology for researching the creation of a methodology for studying the motivational regulatory system, is in fact a structure of the "expanding nodes" type and therefore it is in itself, together with the approach, built in the model of cognitive architecture that has been created.

G-space

In order to achieve a simulation model of analogue transformation and structural interpretation of the transformation, the fields of G-space are modified into fields which present means for manifestation of specifics – (highlight characteristic specifics) of the elements of G-space (a standard), of the way of ordering (configuring according to an algorithm (a standard) – situationally, depending on the phenotype of the specific motivational system) of the motivational regulatory system elements.

These fields, as every element recognised by its genotype characteristics present in the G-space field, are introduced into the motivational regulatory system in a sequence following the isomorphism recognised by the phenotype characteristics, build up the structure of the G-model.

Procedures that regulate the finding and regulation of social relationships that motivate toward the realisation of a specified in the regulation system behaviour, are presented in the G-model. The G-model is designed for simulation experiments in the conditions of a serious game for testing relativity - "goals – realisation of behaviour", as well as for finding the structure in the motivational system that "programmes" the behaviour assigned by the constructor. The G-model allows assessment of logical integrity, efficiency and optimality by criteria chosen by the natural and legal persons under regulation themselves.

G-space allows finding existing, unknown to the constructor strings of causal relations between elements, which belong to different levels.

Through introducing a specific motivational regulatory system (law, statute, and contract) in G-space, the following process is simulated:

diagnostics of the logical integrity, respectively efficiency and;

narrowing relativity when it comes to:

belonging to a certain type of structure and;

a place in the chain of cause-and-effect relationships; on the missing parts of the diagnosed object.

The missing elements, or fragments, from the chain of the cause-and-effect relationships in the G-model are found by analysis of the components that describe the procedures with the indicator "undefined presence of attributes on one of the levels". The missing links of a regulating mechanism's structure are found during the testing with the help of the criteria for efficiency, logical integrity, socio-economic efficiency and optimality.

The impact that a structure realises depends on the configuration and the specifics of the elements (into which an analogue function is built). This peculiarity allows for the analysis and evaluation of schemes in visual form, and not in a shape presented by a formal system of differential equations.

Of utmost importance for the quality of the motivational regulatory system, as a regulator of social relationships, is the opportunity for a global criterion for efficiency, logical integrity and unambiguity, which could be even undefinable, to be "interpreted" and attached for testing through the use of G-space, in the terms describing a given fragment.

G-space allows simulation and transformation on the principle of "one looks at a unit globally and makes a decision, but then acts on a separate fragment". In other words, G-space gives the analyst-constructor the opportunity "to see globally and act locally, depending on the situation".

Democratic Legal System

A legal system or its design are democratic and optimal when the following is available: perfect normative system, satisfying the subjective right of every legal subject to look for justice and to receive it; realizability of the subjective right without financial barriers, without social pressure and obstructive behavior of the administrative workers; and perfect organization of the administration (understood as institutions and organizational technology).

Democratic normative system as a regulator of the socio-economic relations, including the legal subjects themselves, with an accent on the regulation, applied by the judicial and the administrative bodies to solve the conflicts, guarantee equality before the law in the realization of the interests and the potential of every legal subject.

The regulatory procedures, which are built in perfect legal system, have the following characteristics: justice; equifinality; transparency; conflict prevention; and appropriate decision; and guarantee safety and optimal and socially efficient social device or social-economic unit.

Optimal Organization of the Administrative Bodies Realizing the Law

The optimal schematic configuration of the administrative organization comprises of: optimal organization of the technological chains and optimal organizational technology.

The optimal organization of the technological chains comprises of: optimal organization of the technological infrastructure of each position of the technological chain – the organization of the process of activity realization is being designed by the popular methods of operations management; and optimal allocation of the staff – it is being accomplished through the "distributive justice"* procedure, which is adapted to the specificity of the activity realization.

The optimal organizational technology, which guarantee transparency, comprises of: personalization of rights and duties; transparency of the actions and registration of the results – the project is being accomplished through "retributive justice" procedure, adapted to the specificity of the activity; quality control; and review of the contracts and other documents related to the contracts.

The optimal organization of the administrative bodies is a reviewed and corrected model, transformed, at the relevant languages of the levels, in relevant documents.

The optimal organization of the administrative bodies ensures full transparency of the individual behavior and effective control against prohibited actions; eliminates the conflicts, which have negative influence on the activity realization; and ensures efficient utilization of the resources.

The optimal organization of the administrative bodies considerably increases the motivation of each of the citizens or member of the personnel of the SEU for the achievement of high socio-economic results and it also increases significantly the socio-economic efficiency.

Social practices (which bind in a tracking system (servomechanism or Kalman filter in Cybernetics) everyone's interests to the results, achieved by himself/herself, and which allow the relevant participation in the process of decision-making and a relevant manifestation and protection of the personal interests), built in the institutional framework of the optimal social device or SEU, premise optimal decisions as integrated individual decisions.

Conclusion

The most serious obstacle to democratic transition, and the development of a democratic system, is the missing knowledge in the community about the opportunities offered by the approach and tools - such as AI-methodology and G-space cognitive architecture.

The lack of these knowledge does not allow analysis of the social democratic practices and their improvement and control as well as prevention of the negative social consequences of the introduction of development tools in finance, economic and political fields.

Training for acquiring knowledge for this modern instruments stimulating democratic thinking and democratic attitudes in society should start from primary school - like education and continue as continuous training, analysis and research to democracy. Because democracy is the work of all citizens overcoming authoritarian attitudes can be achieved only by literate people in this area.

This barrier prevents the development of a democratic legal system, and that highly sensitive regulators socio-economic interests motivating citizens and officials to actions and decisions consistent with the democratic values of civil society.

Together with the training necessary creation of a system of institutions for permanent audit of the development of democratic institutions, analyzing, documenting and notifying the public, the design of every available piece of legislation together with the preliminary assessment of its impact on the functioning of public device and dangers for democratic legal order.

A network of scientific research topics centers is necessary and the global democratic community. To overcome the negative trends in the democratic process and the development of democratic social order is necessary launch a large-scale program to create think tanks for research and advisory services and training and scientific development of cadres. Shots for analysis and design of legal systems and especially motivational mechanisms regulating basic democratic social practices.

It is overcoming isolationism in legal science and the development and direction of enrichment achievements of modern technological knowledge in the spirit of the General Systems Theory by Ludwig von Bertalanffy and AI . It is reviewing the directions for the development of legal science in the interest of increasing the courses, projects and training time on analysis and design of logic structures of legal acts regulating social relations in the spirit of democratic rule of law.

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