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Methodological principles of building the system of technical regulation in construction

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ABSTRACT: *the article examines basic conceptual foundations of building the system of technical regulation in construction, its key points and methodological principles of building the implementation of which will transform the construction industry into a modern competitive economic realm.*
Regulatory support of the construction industry in Ukraine should be based on a well-developed methodological concept relied on domestic and foreign experience in the development and implementation.
An important component of scientific basis of regulatory activity in the construction includes methodological principles whose implementation allows to build a systematic, structured and methodologically consistent regulatory framework meeting modern requirements for forming safe and comfortable environment for human life both of the society as a whole, and of an individual consumer.
Detailed analysis of the experience of introduction of new principles of technical regulation in construction in Ukraine shows that entirely the problem of scientific substantiation of this activity is a systemic problem.
Its solution consists in the need of presenting "technical regulation" as a kind of scientific research direction followed by the creation of scientific methodology of this direction. Thus, the system bases for the creation of sociotechnical system of "technical regulation" are provided, and their main target concept consists of introduction of "parametric" approach as opposed to "attributive" approach.
Thus, technical regulation as an applied socially-oriented scientific direction requires creation of its own methodological scientific foundations and tools for development and implementation.
KEYWORDS technical regulation, construction, objects of technical regulation, methodological principles.

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I. INTRODUCTION

Implementation of the full range of technical regulation mechanisms in construction is possible, first of all, subject to the development of an integrated system of technical regulation in the industry, starting from the definition of main goals and principles of this system, and ending with its components such as acts and mandatory and voluntary documents.

Structuring of any sphere of knowledge is the key to its systemic development. Practice should always be based on the results of scientific research, and at the same time should be the basis for testing new scientific developments and hypotheses. Therefore, the relationship between theory and practice, especially in the applied fields of scientific research, should be constant.

Building of regulatory support of the construction industry in Ukraine should be based on a well-developed methodological concept relied on domestic and foreign experience.

An important component of scientific basis of regulatory activity in the construction includes methodological principles whose implementation allows to build a systematic, structured and methodologically consistent regulatory framework meeting modern requirements for forming safe and comfortable environment for human life both of the society as a whole, and of an individual consumer.

Therefore, correct formulation of methodological principles will determine the correct definition of scientific basis for the formulation and further development of regulatory framework of the construction industry.

II. PRESENTATION OF BASIC MATERIAL

Many practitioners and scientists tended issues of building the system of technical regulation in their publications. Among them: D. V. Barzylovych, V. G. Tarasyuk, M. L. Grynberg, M. V. Omelyanenko and others.

Most of the publications were devoted to various aspects of the current state of the domestic regulatory framework, and analysis of foreign experience in this field.

Object-matter of this publication. The main objectives of the publication include:

1. Definition of conceptual basis of technical regulation in construction that can be the basis for the implementation of priority measures for creating a system aimed at the formation of sound environment for human life.
2. Substantiation of methodological principles in the formation of regulatory support of the industry, and the sphere of technical regulation in construction as a whole.

Main part.

1. Conceptual basis of technical regulation.

Characteristics of construction products and processes of their creation have always been subject of the state regulation. Therefore, these issues were regulated by legislative and subordinate acts, and technical documents of state level (construction norms and standards). However, with the development of market relations in the economy, including in the construction industry, the requirements of many documents are rather over-regulated, and the regulatory framework as a whole is cumbersome and unable to respond quickly to changes in consumer requirements for the environment for human life.

Documents of the regulatory framework in construction are cross-sectoral due to the fact that construction projects and construction products cover almost all sectors of the state economy.

Taking into account these circumstances and in order to transform the construction industry into a modern competitive sphere of the economy, it is necessary to fully implement the mechanisms of technical regulation in this economic realm.

At the legislative level, certain steps have already been taken to introduce technical regulation in the territory of Ukraine – the Law of Ukraine "On technical regulations and conformity assessment" was adopted and implemented. However, this document does not take into account the full range of peculiarities of technical regulation in the construction industry. Some provisions of this legislative act cannot be used for the construction industry, particularly for construction products and construction processes. Therefore, in order to create a full-fledged regulatory framework that will allow to fully introduce mechanisms of technical regulation in construction, it is necessary to improve legal support in accordance with the needs of the construction industry.

An attempt of such adaptation was made by the Cabinet of Ministers of Ukraine through the adoption of Technical regulations of construction products, buildings and structures, the document was developed on the basis of EU Directive 89/106/EEC and defines the basic requirements for structures and products for construction purposes, as well as the basic procedures for conformity assessment of products.

Analysis of the world and domestic practice of technical regulation in construction and the use of documents in the design and construction shows that the adoption of only legislative acts without specifying their provisions in the form of acts and technical documents (construction norms, standards) does not make it possible to achieve the objectives of technical regulation and in particular compliance with safety requirements at all stages of the life cycle of construction projects and construction products.

The conceptual framework of technical regulation in construction will allow to create conditions for the introduction in full of mechanisms of technical regulation in order to create a safe environment for human life.

The conceptual framework should take into account the following features of construction projects and construction products:

- buildings, as a rule, are intended for the use and operation for long periods of time; their structures the requirements of which determine the mechanical safety of the building, in most cases, are calculated for the entire life of the building and are not subject to replacement; in this regard, assessment and confirmation of compliance of construction products with safety requirements should be carried out both during its construction and use;
- location of each building, as a rule, can not be changed during its use because the life cycle of the building is significantly affected by the characteristics of the land plot, features of urban restrictions, climatic conditions of the construction area, architectural and functional problems being solved during construction, as well as features of technological processes the facility is intended for. Therefore, a building, unlike industrial products for construction purposes, can not be an object of production procedures, including through the manufacture and testing of prototypes for subsequent approval of technical documentation;
- a building must comply with the project documentation developed in accordance with the established requirements, including for the implementation of the requirements of technical regulations. Control over

the compliance of building with the established requirements should be carried out both during its construction and use.

It should be noted that, as evidenced by the analysis of the world practice of technical regulation in construction, a minimum number of documents is approved in most countries as legal acts; while specific requirements for construction products are defined in the documents for voluntary application which should be the evidence base for compliance with the requirements of technical regulations.

Taking into account these features, the conceptual framework should contain basic provisions for the development, adoption and implementation of technical regulations, construction norms and standards in the field of construction, as well as procedures for assessing and confirming compliance of construction products and other objects of technical regulation in the field of construction with these requirements.

Main objectives and principles of technical regulation in construction. The term "technical regulation in construction" should be understood as the creation of regulatory support for the construction industry for creating a safe environment for human life, taking into account sustainable development of the natural environment, as well as introduction and operation of mechanisms that create favourable conditions for self-regulation of market relations between manufacturers, suppliers and consumers of products, services and processes related to the creation of construction products and elements of the environment of human life. This concept defines the main purpose of technical regulation in the industry.

The main strategic objectives of technical regulation in construction is the formation of regulatory framework integrated into international regulatory space of technical regulation in construction.

Thus, technical regulation is carried out through the development, adoption, application and execution of mandatory and voluntary requirements for construction projects and construction products, as well as procedures for assessment and confirmation of compliance.

Main principles of technical regulation in construction include principles of development, systemicity, objectivity, consistency.

Objects of technical regulation in construction include:

- territory space planning;
- area zoning of the territory of Ukraine and its parts;
- territory space planning of the settlement and its parts with common space planning, volume and spatial decision, engineering and transport infrastructure, and a complex of objects of construction;
- buildings and constructions intended for residential, public, industrial and other purposes, their complexes, amenities, objects of gardening and landscape architecture;
- materials, components, equipment, systems, rules, procedures, methods, activities or their results, including products, personnel, management systems, including those to which conformity assessment is applied;
- compatibility of materials, components, equipment, systems;
- functions;
- terminology requirements;
- designation requirements;
- packing requirements;
- packaging requirements;
- marking requirements;
- labeling requirements and the like.

Main tasks of the system of technical regulation in construction.

Technical regulation in construction should contribute to solving the problems facing the construction industry, and ensure the following in accordance with the purpose of technical regulation:

- safety of structures and products for construction purposes, processes of their creation, operation and disposal in terms of human life and health, property and environmental protection;
- compliance of buildings and construction products to their purpose, and creation of favourable living environments of users and other persons;
- protection of buildings and products for construction purposes and people from adverse effects in the calculated operating conditions taking into account the risk of emergency situations having natural and technogenic character;
- reliability and quality of building structures and foundations, systems of engineering equipment, buildings;
- environment protection from adverse effects of buildings;
- rational use of natural, material, fuel, energy and labour resources;
- creation of conditions for scientific and technical progress in the field of construction;
- improving the competitiveness of buildings, products, works and services;
- comparability of the results of research, tests and measurements;

- interchangeability of products used in construction;
- mutual understanding in the implementation of all activities in the field of construction, and elimination of technical barriers in international cooperation.

Main mandatory requirements for application and execution include:

- provision of mechanical resistance and stability. Loads and impacts on the building during construction and operation should not lead to the destruction of whole building or its parts, and to the deformation exceeding the values allowed by building regulations;
- compliance with the following fire safety requirements:
- maintaining the bearing capacity of structures for the established time;
- limiting the spread of fire and smoke in the building, as well as to adjacent buildings and adjacent areas;
- ensuring the evacuation of people from the building or their rescue in another way;
- ensuring the safety of rescue teams;
- providing the following:
- safety of human life and health and environmental protection. A building should comply with the requirements of legislation on the protection of human health and environmental protection;
- operational safety. In the course of the building operation, the risks of accidents should be excluded;
- noise protection. Noise and vibration level in buildings should not exceed the established standards;
- energy saving. In the course of design and construction of buildings and their equipment the efficient use of energy required for operation should be ensured, taking into account climatic conditions.

Main mandatory requirements for the objects of technical regulation in construction are established in technical regulations developed and adopted in accordance with the legislation.

As well, buildings should also meet mandatory requirements contained in construction norms, as well as in urban planning documentation developed in accordance with the legislation.

A System of technical regulation in construction is formed (except for technical regulations) of mandatory and voluntary documents for ensuring compliance with the requirements of technical regulations in the field of construction, as their evidence base, as well as for the formation of favourable environment for human life, for ensuring compliance of structures and products for construction purposes to functional purpose, operational suitability and durability of building structures and engineering systems of buildings, rational consumption of material and energy resources during their construction and operation. General requirements of technical regulations (objectives of regulatory requirements) are specified in System documents with respect to specific objects of technical regulation in construction through functional requirements and criteria (sets of criteria) for assessing the characteristics of objects of technical regulation.

Conformity assessment of buildings, processes, construction products, works and services is performed in order to establish its compliance with the mandatory requirements of technical regulations and construction norms, as well as the requirements specified in contracts and technical design assignments, national standards and other regulatory documents.

Technical regulations, construction norms and regulatory documents in construction form a system of technical regulation in construction.

Technical regulations in the field of construction. Technical regulations in the field of construction are developed and adopted in accordance with the legislation. The fundamental regulation should be the technical regulation "On basic requirements for buildings and structures, as well as conditions for construction products marketing, harmonized with the norms of the legislation of the European Union", which is now developed on the basis of Regulation (EU) No. 305/2011 and defines the basic requirements for structures, as well as basic principles for declaration of building products The fundamental technical regulations should establish requirements for ensuring the safety of buildings at all stages of their life cycle, including engineering surveys, design, construction, operation and liquidation (demolition). In addition to the fundamental technical regulations, special technical regulations may be developed, which may establish specific safety requirements for individual elements of certain buildings.

Special technical regulations may be developed in cases where the safety of certain buildings is not fully ensured by the requirements of fundamental technical regulations.

Technical regulations in the field of construction are formed taking into account the latest achievements of science and technology. When forming technical regulations in the field of construction, the requirements of technical regulations adopted in accordance with the legislation in the field of protection of human life and health, and property of citizens, as well as in the field of environmental protection should also be taken into account.

When establishing the requirements of technical regulations the recommendations of international organizations in the field of elimination of barriers to international trade cooperation in construction should be taken into account.

Other documents of the System of technical regulation in construction. Documents (except for technical regulations), being a part of the System of technical regulation in construction shall be developed as inter-industry regulation in construction.

The System of technical regulation in construction should include:

- construction norms;
- national standards and guidelines;
- technical certificates.

Construction norms are developed for mandatory application at all stages of the life cycle of the object of technical regulation in construction.

Construction norms contain the objectives of regulatory requirements that are not the main safety issues, as well as functional requirements for objects of technical regulation in construction, criteria (sets of criteria) for assessing the characteristics of objects of technical regulation in construction.

Construction norms are approved by the Central executive authority ensuring the development of state policy in the field of construction.

National standards and guidances are developed for voluntary application. National standards and guidelines may be mandatory for application in the following cases:

if referenced in binding documents;

when a product manufacturer undertakes to manufacture products according to this standard.

National standards and guidelines are adopted by the National standardization body on the basis of proposals of the Central executive authority ensuring the development of state policy in the field of construction.

National standards, as a rule, determine the requirements for construction products, its properties, scope of application, etc.

National guidelines, as a rule, contain requirements for processes, procedures, services in the field of construction and building material industry.

The national standard can be a regulatory standard, that is a document providing, in the case of voluntary application, a presumption of conformity of the construction product to the basic requirements for buildings.

Technical certificate can be provided for products for construction purposes regulatory requirements for which are not provided in existing regulations, it contains information about the general description of the construction product, scope of its application; trademark; actual name of the manufacturer; contact address; list of performance characteristics (indicators); code of the technical testing body defined in accordance with the established procedure for granting the status of technical testing body according to certain field of activity; references to methods, principles and criteria for assessing the stability of its performance (indicators); and the date of issue of the technical certificate.

As well, the System of technical regulation in construction includes regulatory specifications: regulatory standard or technical certificate, compliance with the requirements of which confirms compliance with the legislative requirements to structures and construction products, and provides a presumption of conformity of the construction product to the basic requirements for buildings.

III. METHODOLOGICAL PRINCIPLES OF BUILDING THE SYSTEM OF TECHNICAL REGULATION IN CONSTRUCTION

In order to describe and study the system of technical regulation as a scientific and practical field based on systemic methodology, and for better understanding of the mechanisms of its development, we define the basic methodological principles of construction and operation of this system (Fig. 1).

1. Developmental principle.

Implementation of the developmental principle should be understood in several aspects - as an external function, as a system-wide feature, and as a set of internal structural and functional capabilities:

- development as a result of openness of the system to environmental changes, and the ability to respond quickly to changes;
- development as openness to structural and functional improvement of the system;
- development as a constant systemic transformation of conceptual system of methodology;
- development as search and development of tools used by the system (methods, models, decision-making systems, etc);
- development as a process of internal ordering of the system and its elements.

An operating system cannot be static, it is in the process of constant development. The system of technical regulation in construction is no exception. Conditions of human and social life are changing, and requirements to the environment and its elements are changing, accordingly. With the increase in living

standards, the requirements for the environmental comfort, safety and other requirements necessarily change, as well.

DEVELOPMENTAL PRINCIPLE

System of technical regulation in construction is in the process of constant development due to changes in human and social life, and change of requirements to the environment of human living. New technologies and new products for construction appear, and they require legalization

PRINCIPLE OF CONSISTENCY

System of technical regulation in construction is a holistic system, and the slightest changes in one of its components entail immediately irreversible changes in other components of the system.

PRINCIPLE OF OBJECTIVITY

Determination of the regulatory requirements for elements of the environment for human living, for construction products, processes and services in the field of construction, as well as in the implementation of processes and services should be established as objectively and reasonably as possible.

PRINCIPLE OF SEQUENCE

Establishing of consistent relationship between the components of technical regulation, such as regulation, standardization, conformity assessment and state market supervision

Fig. 1..Methodological principles of building a system of technical regulation in construction.

Accordingly, both regulatory system and system of technical regulation in construction in a broad sense should be able to respond quickly to changes in the needs of society to the environment.

Therefore, the system of technical regulation in construction should be in constant progress, in constant development. It should be neither frozen nor slow-moving, because it will not meet the needs of consumers to the elements of the environment.

As well, under certain conditions, "rules of the game" in the construction industry are changed – there are new construction materials and products, technologies, and therefore new conditions may appear for their implementation, conformity assessment, etc. Generally, conditions of interaction between countries and their systems in various sectors of the economy change under the influence of changes in the socio-economic development of countries.

If properly constructed, the system of technical regulation in construction will respond quickly to any of the above changes, and will rebuild accordingly.

2. Principle of consistency.

The principle of consistency can also be implemented in several ways:

- consistency as a clear logic of construction and functioning of all elements of the methodology and the system as a whole;
- consistency as a hierarchy in the structure of the system, subordination of its elements and the results generated by it;
- consistency in the mechanisms of external interaction with the scientific, administrative and social environment;
- consistency in the construction of models and scenarios, including the construction of extrapolative (prognostic) models.

The principle of consistency emphasizes that technical regulation in construction should be considered as an integrated system, where the slightest changes of one of its components can lead to irreversible changes in other subsystems.

Thus, when changing the regulatory framework of technical regulation in construction, we face a need to change other elements of the system by bringing them into line with the changes. Changing certain

requirements at the level of regulation in construction leads as a rule to a need to change certain requirements for standardization, and possibly for assessment and confirmation of compliance, as well.

Otherwise, if all elements of the system of technical regulation in construction are not changed as a result of changing one of the elements, the process of degradation of the system can become irreversible and lead, at least, to wrong operation of the entire system, and at most to the collapse of the system of technical regulation in construction.

3. Principle of objectivity.

The essence of this principle is as follows:

- objectivity in construction and development of the entire set of objects and subjects of the system of technical regulation, taking into account the deregulation of developmental trends and the need to introduce mechanisms of public administration;
- objectivity in determining all the meaningful components of the system of technical regulation (regulatory requirements, processes, techniques, etc);
- objectivity in the definition of terms and concepts;
- ensuring objectivity in practical implementation of the system of technical regulation.

First of all, this principle is the basis of all processes occurring within the system of technical regulation in construction. The principle of objectivity should be present in determining the regulatory requirements for elements of the environment for human living, for construction products, processes and services in the field of construction, as well as in the implementation of processes and services. For example, implementation of procedures for conformity assessment of products used in construction should be performed in accordance with objective techniques. However, any process or service including performance of human as a participant in the process or service shall be subjective at a certain degree, which is explained by so-called "human factor", but this subjectivity should be minimized.

It shall be by any means unacceptable to define requirements when they are insufficiently justified. Such requirements, if applied, can harm both human and environment, sometimes possibly in an irreparable way. Therefore, any regulatory restriction, requirement should be carefully checked for their validity and appropriateness. To a certain extent, this problem can be solved by introduction of parametric method, which ultimately moves away from the definition of specific quantitative regulatory parameters, and determines only the goal to be achieved as a result of implementation of the regulatory requirement, and the essential characteristics of this regulatory requirement. The responsibility for the implementation of a specific regulatory requirement shall remain with the designer and constructor, who can implement a specific regulatory requirement and create a human-safe environment through acceptable solutions approved by time and practice, or through alternative solutions previously proven to be applicable.

4. Principle of sequence.

Obviously, the implementation of the principle consists in the following:

- compliance with the sequence and hierarchy of building the system of requirements in the implementation of the parametric approach;
- the sequence of building and development of the system of technical regulation as a whole, and the methodology of its building, in particular;
- the sequence (in time) of practical implementation of new principles of technical regulation and appropriate methodology.

The essence of the principle is to establish consistent relationship between the components of technical regulation, such as regulation, standardization, conformity assessment and state market supervision.

For example,, general mandatory requirements should be defined in the field of regulation in construction that should be further developed and clarified in the field of standardization, assessment and confirmation of compliance. At the legislative level, main legal approaches for creating a safe environment should be defined, and further specified in the field of regulation and standardization in construction. Such a consistent link between various components of technical regulation will ensure its effective functioning.

As well, introduction of regulatory requirements on the basis of parametric method will form a clear hierarchy of components of the regulatory requirement: the purpose of the regulatory requirement, functional requirements for the standardization object, criteria (sets of criteria) for assessing the performance of the standardization object. Only consistent implementation of such hierarchical requirements in both directions will allow to form a complete and safe environment for human existence.

IV. CONTENT OF THE METHODOLOGICAL PARADIGM OF TECHNICAL REGULATION

Let us consider the general hierarchical structure (Fig. 2) of the methodology of applied scientific discipline functioning in external subject-scientific and administrative environments [4]. Extended interpretation of the "methodology" concept is used, its expediency is determined by the openness of the considered direction to the external environment. This extended interpretation can be construed as follows.

Along with subject-scientific (content and formal) component based on certain theoretical and methodological core of science, information-conflictological and socio-technical components should be built, respectively:

a) the system of regulating interaction of science with the environment, formalization of transformation schemes of its theoretical and methodological core;

b) the system of knowledge and science management as a whole, the system of the protection of scientific direction in the external environment.

Obviously, informational-conflictological component of the methodology should ensure the integrity and progressive development of the discipline.

In turn, its sociotechnical aspect is a way of regulating the internal systemic instability and coordinating all the directions of the development that exist physically or potentially in the scientific discipline as a grid organizational system.

Thus, methodological system of "technical regulation" as a scientific direction is formed by three superordinated subsystems.

1. Subject-scientific subsystem contains the structure, the content, and determines the level of development of a unique scientific product that distinguishes the direction as a self-sufficient scientific system. The subsystem consists of:

- theoretical and methodological core -TMC (conceptual system, paradigm [5]);
- tools, methods and models inherent in this science or attracted from the external scientific environment;
- historiography of the directions (sectors), containing organized information on the genesis and symbolic stages of development which fundamentally influenced modern scientific content of the direction;
- conceptual apparatus formed both by the external environment and by the system itself according to certain rules and certain restrictions [6];
- typology and systematics containing the necessary internal hierarchical construction of the scientific direction, classification and ordering rules of the system elements.

It should be noted that the level of development of the components of the subject-scientific subsystem is different at different stages of the life cycle of the scientific system. Thus,theoretically developed, "classical" scientific disciplines are characterized by the existence of many internal theoretical directions and concepts, as well as by the development of their own tools and methods, the stability of the conceptual apparatus and hierarchical structures. In such cases, even such a structural element as "laws of building TMC and tools" appears in this subsystem.

In our case, there is a stage of the initial building of scientific subsystem in TR direction, which is characterized by conceptual uniformity ("parametric" approach paradigm), practical absence of own tools, a significant amount of information based on the experience of the direction development in both historical and regional dimensions and, as a result, imbalance of the conceptual apparatus [7] and the lack of clear typological structure.

2. Information-conflictological component determines informational structure of the direction, the state of its development and the specifics of the conflict interaction of both elements within the system and the interaction of the system with the external scientific, and scientific and administrative environment. Information-conflictological subsystem consists of:

- information models - information structure of scientific product, which can be conveniently presented in the form of the model by G. Dobrov [8], where scientific information I0 is determined by three components: F0-factual material, M0-tools, methods and models, C0-theoretical platform of this science;
- interscientific interaction - rules of rational distancing and productive interaction of the direction with the scientific environment (assimilation, synthesis of industries, adjacency of sciences, etc);
- systemic conflicts - study of internal and external conflicts at all levels of the system hierarchy and stages of its life cycle. Conflictological analysis of internal elements of the "technical regulation" system is extremely important, since it actually determines the rational structure of relations between subjects and

objects and the model of building of the system of regulatory requirements in technical regulation [9, 10, 11];

- field of application - research and predictive modeling of the development of the field of application of practical (actual) product as a result of STS TR system functioning.

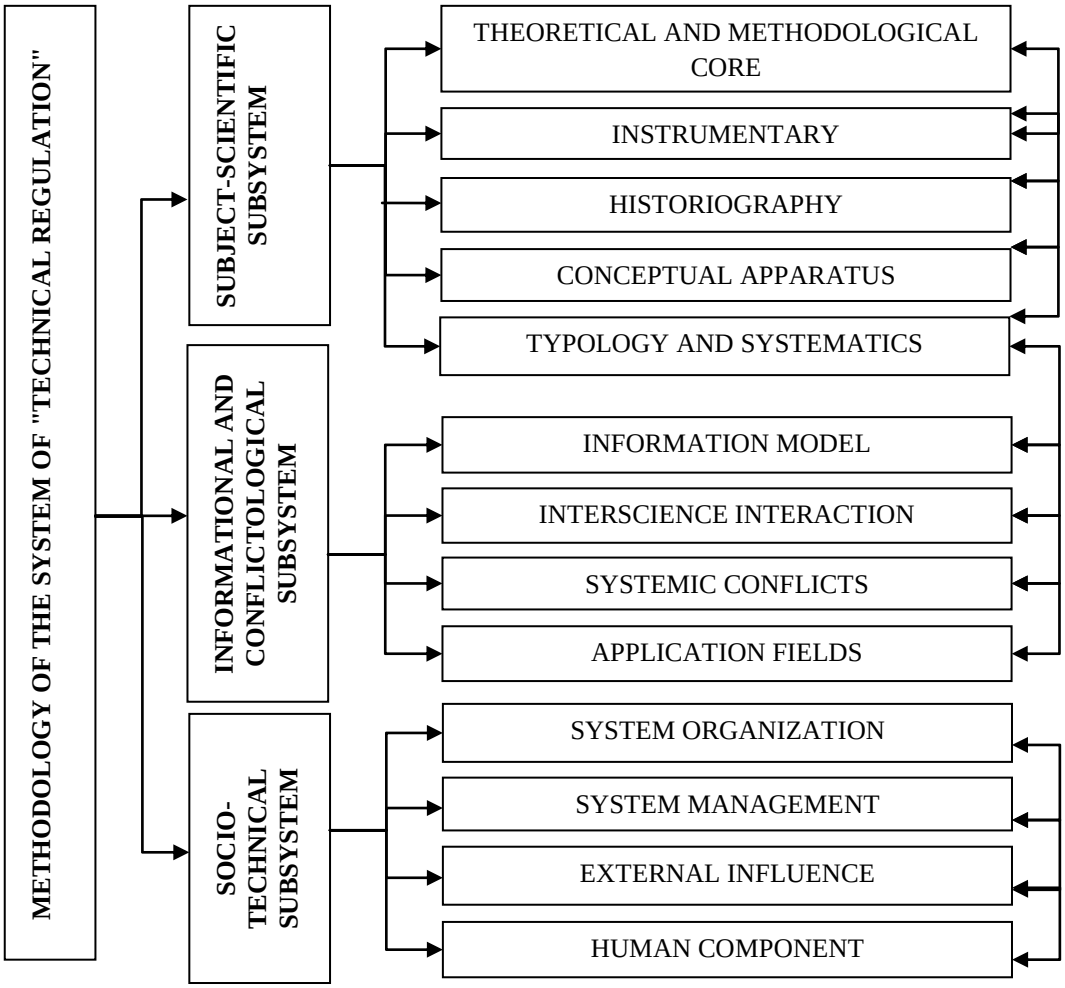

Fig. 2. General hierarchical structure of the methodology of scientific direction "Technical regulation in construction"

It should be noted that information-conflictological subsystem provides the substantiation of conflict-free internal TR structure, and is a peculiar mechanism of transfer of science-intensive results of subject-scientific TR subsystem to the implementation environment.

3. Socio-technical subsystem provides implementation of organizational, managerial and technological aspects of the implementation of science-based results of TR system in the implementation environment. The subsystem consists of the following elements:

- organization of the system defines the principles and rules for building organizational structures of the system of technical regulation in the current state, in the process of transformation to the systemic implementation of parametric approach in predictive models of the development of construction industry;
- system management defines rational management approaches and models of system management and its functioning at all stages of the life cycle, including the processes of internal structural transformations (re-engineering);
- external impacts explore the state, transformation and nature of the interaction of external administrative environment the system operates in (governmental bodies, non-governmental structures, legal framework associated with the system of technical regulation);

- personnel component provides professional personnel support to the process of creating objects of technical regulation by forming appropriate areas of training in specialized institutions of higher education and in the system of postgraduate education. It should be noted here certain experience of KNUCA in the development of this direction, namely, opening of the direction "Standardization and certification in construction" at the Construction Faculty.

V. CONCLUSION

1. Implementation of stated conceptual bases is possible under the conditions of making appropriate changes to the legislative support and some by-laws regulating activities in the construction industry and construction materials industry. This work should be carried out systematically and consistently, especially since the first steps in this direction have already been taken. Building a full-fledged integrated system of technical regulation in construction will form the basis for the active development of a modern competitive economic realm for creating a full-fledged environment for human life.

2. Studied basic methodological principles are the basis for building and functioning of the system of technical regulation in construction. Obviously, the content of these principles can be developed, the list of given content areas is open, since the methodological platform of the scientific direction "technical regulation" and corresponding social engineering system as a whole depend essentially on the external environment. However, the above principles are fundamental for the creation of modern regulatory support, on the basis of which modern competitive construction industry will be formed.

4. Building the systemic methodology of technical regulation as a science-intensive applied direction shall solve not only the problem of its systematization, but also establish the relationship of hierarchically related subsystems of the TR system, and open opportunities for the development of instrumental and methodological components of the system. Study of information-conflictological, organizational and technical aspects of the methodology creates conditions for conflict-free, safe and progressive development of the direction in the external environment.

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