Scientific Innovation and its Representation in Discourse

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Abstract

The article is devoted to the representation problem of innovation as a linguistic-cultural concept of objectification "new" in the scientific-innovative discourse representing a communication tool with a complex macrostructure of language units reflecting the phenomenon of innovation in the modern communicative space. Such kind of macrostructure has syntactico-semantic cohesion of its components and the external information content.

The innovation's objectives and content, the conditions of its actualization lead to appearing of different scientific-innovative discourse styles and genres possess specific syntactic organization, semantic reference, morphology, vocabulary and coordination with the communication type. The stylistics of scientific-innovative discourse is presented by multifaceted knowledge reflecting cognitive interrelated contexts.

Key Words: innovation, categorization, cognitive matrix, communication, concept, scientific-innovative discourse, stylistics.

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1. Introduction

In the process of expanded reproduction the latest scientific knowledge becomes an important development resource of modern society innovation (novation) is understood as actualized result and efficient complex process of scientific and other activities as objectified novations owning high efficiency. Innovations cut across and link the various areas of human existence: science, politics, economics, education, etc. The universal character of scientific innovations often allows their use in various domains of innovative product application.

Depending on the subject area of innovations actualization, they can be various types, for example, technological or social. In the social field innovations represent new conceptions, ideas and organizations that contribute to the civil society development. Innovations in other spheres of life provide the creation and introduction of technologically new product/process. Innovation focused on the future development of society in a technological context is a factor of economic growth (Epifanova *et al.,* 2015; Frank *et al.,* 2016).

Modern processes of new knowledge application are linked to market relations, therefore innovations aimed to the market and its needs. The European Union (EU) adopted a number of documents including the "Strategy "Europe 2020""[5] governing innovative processes of EU development. The idea of building the innovative society is being implemented nowadays.

Innovation as the ultimate result of intellectual creative process forms a complex high-tech product. Unlike academic researches represented by the scientific discourse[6], which, as a rule, only explains the world, scientific innovation initially focused on the world's changing and innovation implementation in accordance with society needs (Firescu and Popescu, 2015).

Swiftness is very important in actualization of innovations and gives social and technological advantages. This fact causes the demand for special linguistic support of scientific and innovation processes, specific discourse (special discursive practice) suitable for the establishment and optimal social or substantive implementation of innovation (Kormishkin *et al.,* 2016; Novokreshchenova *et al.,* 2016; Stroeva *et al.,* 2015; 2016).

"Innovation" as a category of socio-cultural objectification of the "new" is represented in the form of linguistic reflection of the complex creatively-theoretical and subject-practical

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[5] *The New European Strategy "Europe 2020", URL: http://eulaw.ru/content/307 (reference date: 29.08.2016).*
[6] *Chernyavskaja V.E. (2009), "Iinterpretation of Scientific Text: a Manual for High School", 5th Ed. Stereotype, M.,*
KomKniga, 128 p.

activities of the person. A variety of discursive types[7] are functionally defined on the basis of the post-structuralism ideas. New ways of communication and world understanding, which provides an expanded understanding of the world, opens new possibilities understanding either specific traits or general processes. For the innovation study we use the central categories of lingo-cognitive modeling: concept, frame, scenario, cognitive matrix, discourse, text, etc. They all are the basic concepts of the research and correspond to the nature of the studied linguistic phenomenon.

The universal frame of category "innovation" contains a number of terminals with slots: the creative aspect "discovery", "patent"; the fundamental world of conventional innovation "innovation", "novation"; the subject- practical aspect "new product"; temporal aspect "change", "changing of the old to the new", "dynamism". The concept of innovation implies a breakthrough in the way of thinking, a transformation of creative ideas into a product, the growth of knowledge with its subsequent implementation (Theriou *et al.,* 2014; Theriou and Aggelidis, 2014; Keisidou *et al.,* 2013).

Innovation as a result of link between science, business and education ("knowledge triangle") in the conditions of globalization form the knowledge-intensive product which creation, sale, and consumption require support of communication. The innovative technologies exchange is performed on the basis of linguistic methods through the speech intercultural communication and discourse; it often uses the capabilities of artificial intelligence.

Review of materials devoted to the theoretical basis of the discourse study due to cognitive-communication paradigm indicates the existence of a recognized school and major research directions[8]. However, potential of scientific discourse is insufficient for the representation of the scientific innovation features in this aspect[9].

Communication becomes multilateral and multi-polar, the users communication transforms to their collegial interaction[10]. Produced format of the recipient and addresser interaction as equal co-authors becomes a product of joint creative activity due to discursive communication, which often cannot be effectively represented in the model of the traditional vertical paradigm.

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[7] *Arutyunova N.D. Discourse (1990), "Linguistic Encyclopedic Dictionary", M., pp. 136-137.*

[8] *Makarov M. L. (2003), Fundamentals of the theory of discourse. – M, Gnosis, 280 p.*

[9] *Jorgensen M., Phillips L. (2004), "Discourse Analysis as Theory and Method", Kharkov, Gumanitarnyy Tsentr, 336 p.*

[10] *Evdokimova N.V., Birukov N.G. (2015) The Convergence of Foreign Language Discourse in Shaping the Educational Environment: Functional-Communicative Aspect. Science and Practice: new Discoveries. Proceedings of Materials of the International Scientific Conference, Editors: I.M. Shvec, L.A. Ismagilova, V.A. Gur'eva, E.A. Telegina, V.I. Sedenko. Kirov, pp. 595-604.*

In modern society science and based on it innovations deals with the all area of human existence. Complex human activity associated with the discourse demands as more difficult grammar rules and principles of new vocabulary modeling as complex and special type of discourse. Every natural language creates its own linguistic picture of the world, image of the mental world of the people; it makes speakers take a special way of perceiving the world, the system of human exposure, especially in the area of conceptualization and categorization of the world. This influence exists on conscious and subconscious levels and occurs in special forms of language that characterizes different types of discourse associating with innovation.

Linguistic picture of the world is important along with the linguistic interpretation of situations, events and subjects due the different linguistic forms, the use of different structure of the means of nomination in the language, the concepts suggestive of magical function of language, pragmatics, etc.

2. Theoretical, Informational and Empirical Grounds of the Research

Intensive development of innovative processes actualizes the construction of related scientific and innovative worlds in the form of scientific-innovative discourse (SID)[11] as a generic category in relation to speech, text, dialogue. The combination of the linguistic and socio-pragmatic differences inherent to the considered linguistic practice, existing without finding its reflection in the structure of scientific discourse, provides a basis for the introduction of a new concept of SID and its research as a separate linguistic phenomenon.

SID is regarded as a specific mode of mental activity and communication in verbalized form within a particular social context and is used as a tool and the result of creative-substantive work on the development of scientific innovations, its creation and implementation. The concept of SID corresponds to the new picture of the world, refusing monothematic. SID is a product and a tool of scientific and innovative activities in modern society.

Initially, SID is implemented in the communication process in the "knowledge triangle" that produces a complex knowledge-intensive product which creation, promotion and the consumption requires professional linguistic support. SID is a special kind of discourse, where through a variety of communication strategies the desirable and appropriate relationship between innovation and subjects of scientific-innovative activity are established. Thus certain pragmatic and communicative tasks are solved.

Due to the activity orientation of communication SID is considered as a way of interpersonal verbal interactions using different "channels" of communication (written and

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[11] *Kotelnikova E. V. (2014), Study of Scientific-Innovative Discourse of Intercultural Communication in the Cognitive Aspect: Monograph, Rostov-on-don, Publishing House of Rostov State University of Economics (RINH), 184 p.*

oral) that allows us to consider and use in a proper way both forms of discourse in scientific and innovation activities.

As linguistic phenomenon SID can be attributed to a single type of discourse. Its study enables the possibility of additional characteristics of discourse detection in the cognitive aspect. Objectives of SID are effectively in obtaining comprehensive information and self-presentation. The value contents of SID mean relevance and availability.

The scientific creation of the innovation is inseparable from its actualization. SID belongs to the field of communications of subjects with different competencies, culture, and nationality at the intersection of innovative scientific areas, politics, economics, business, technology, investing, and management. The term SID is used to denote a specific way or specific rules of the particular communication form (discursive practices) where the author and tolerant addresser are interested in implementing and promoting innovations through various means.

In understanding of SID we regard the definition of discourse as activities and linguistic material at the same time, with the special types of mental processes[12]. SID can be defined as a special way of mental activity and communication through the transmission of thought in its verbalized form.

We regard SID as the tool and the result of the research and innovation activities in the field related to the scientific development, creation and implementation of innovations. SID combines the features of scientific discourse aimed at solving scientific problems, as well as features of the innovative discourse harmonizing and enhancing the creativity of the individual producer and the consumer of innovation. SID uses the word which owns the context of culture and is a part of the cultural meta-text (inter-text).

The communicative goals of SID are reporting methods and results of scientific research; implementation of innovation as product or process; formulation of new ideas and their justification; the criticism of competing objects, processes, products, etc. The aim of SID is not only to arouse the recipient interest to innovation by describing the whole sphere of the parties, but using a latent form of opposition, to change the attitude of other competing innovations that, undoubtedly, has an impact on the choice of communicative strategy. The addresser and the recipient of SID possess special competencies that lead to genre variation of SID and are included in the total phenomenological space of interactions.

In general SID includes scientific, technical, economic, production, patent, official discourses, the discourse of management, informal communication, advertising discourses, etc. As the peculiarities of SID we consider existence of conceptual-semantic kernel of the subject innovation, which is reflected among the specific traits of various genres. The objective of NID is not only to obtain objective scientific knowledge as a scientific

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[12] *Makarov M. L. (2003), Fundamentals of the theory of discourse. – M, Gnosis, 280 p.*

innovative product, but also to promote it in various spheres of social activity. The entry of innovation into the system of various social relations and the requirement of a pragmatically oriented linguistic innovation leads to the existence and interaction in the discourse of a certain amount of the elements of the structural-functional characteristics of various institutional discourses.

SID has movable boundaries, it is refilled by necessary for this type of speech-thinking activity elements of other discourses: scientific, industrial, commercial, legal, political; discourse informal communication, advertising, PR, etc. SID varies dynamically potential components of other discourses and ideo-style. Without such a combination of properties of the discourse of innovation cannot be created or implemented as a high-tech product within the international market. In this aspect, the use of SID concept, as the most adequate term is purposeful and justified.

The objectives and content of innovation, the conditions of its implementation cause the contact of SID with different functional styles. We assume a special relationship of stylistic elements and principles of speech organization, which finds its expression in the genre of variability SID. The potential of the SID is to create conditions for effective interaction between the various participants of multilateral scientific and innovative communication process; in a powerful set of information and illocutionary effects on its participants; purposeful influence on the recipient's unique innovative scientific information. NID uses expressive means, including figurative and video representation of the reported meanings; it is often expressed personal component.

SID is aimed at direct interaction of the addresser and the addressee in order to cause the interest of the latest one and to offer him not only the content, but also scripts of his cognitive understanding of the implementation process. Structural organization of SID is closely connected with the exposure of the intentions of the sender.

The SID contains certain parts of the scientific, technical, economic, production, commercial, social, a patent, official-business discourse, discourse management, informal communication, advertising which are necessary for the innovations implementation in the sphere of business.

In the field of science and innovation to change the subject-object comes a new subject-subject paradigm. - Human-centered collaborative communication. Its channel is also a subject of communication, thanks to the software of computer and network technologies, it is full of intellectualized environment in which the horizontal hierarchical models of modern discourse becomes the most typologically relevant and priory.

Successful collaboration at all stages: creation, promotion and mainstreaming of innovation, determines the strategy of scientific and innovative communication. In this model new objectives are formed and fixed, functions of authors and recipients in the process of collaborative interaction is the creation, advancement and use of innovative product, free communication with use of various associative and illocutionary acts. The

recipient is, to a certain extent, co-author and collaborative paradigm - an integral part of communication patterns.

Thanks to the technological updating in the SID the possibility of interaction and creative collaboration of the sender and the recipient based on the associatively of the human mind. The most popular are the technologies and channels, providing interactive fast and symmetric interaction of participants, feedback.

To replace hierarchical, heterogeneous communications: the developer (the author) – you get horizontal homogeneous information flows, forming a non-hierarchical discourse. Prevailing innovation discourse hierarchically horizontal communication promotes harmonization, promote and enhance the creativity of the individual, acting as both producer and consumer of innovation.

Addressee and sender have equal opportunities of access, initiating, formation and development of relationships. The identity is included in various types of interactions, new models of relationships, and thus more and more attention is paid to self-development. Initially, due to the technological features peer interaction and communicant's collaboration are provided. The authors, recipients and professional communicators become complicit in innovation processes.

The objectives and content of innovation, the conditions of its implementation determine the contact of the discourse with various functional styles; it assumes a special relationship of stylistic elements, principles of speech behavior organization; it finds its expression in the genre variability of discourse. The prevalence of mass-horizontal connections of CID represents for the individual an adequate standard of collaborative communication.

SID uses means of expression and figurative representation of reported meanings. Unlike the neutral tone of scientific discourse, necessity of actualization determines the modality of SID where the personal component is emphasized as a rule. Sender is interested in the promotion of innovation through various means, and the discourse provides a solution to communication problems in an expanding field of scientific innovations.

Within the areas structuring of the lexicon is considered as a set of words and expressions representing the overall picture of innovation or private pattern of implementation of innovations in individual subject areas. Therefore, the lexicon is a central component of the SID ideo-style, directly influencing the understanding and processing of the discourse as a whole. At the same time, the interpretation of each linguistic element of SID takes place from the viewpoint of lexis as "vocabulary". The use of SID in various subject areas determines the variability of a number of concepts and innovations considered terminology, as well as the emergence of new not fixed terms[13].

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[13] *Evsukova T. V., Mahnickaya E. Y. (2009), Terminology and vocabulary items in modern economic discourse// Proceedings of the SFU. Philological science. No. 2, pp. 91-100.*
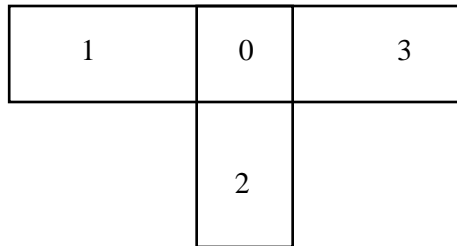
1	0	3
	2	

Figure 1 - Core (0) and peripherals (1, 2, 3) of innovation lexicon
in various subject areas

The wave of educational, scientific, social, political, economic innovations, transforming the modern social and cultural environment in the course of its development, is grouped around the core of informative-communicative innovations, contributing to the reorientation of society to information and knowledge as strategic resources of development, virtualization and globalization of social life.

"Simulation" is one of the most popular innovations of XX century. Simulation is an effective method of solving analysis and synthesis problems in complex systems. It is one of the types of computer modeling using the methodology the structure and behavior of a complex object, computing experiment based on the algorithm of the object functioning.

The algorithm is implemented in the form of a program computer complex to obtain quantitative and qualitative results based on the mathematical model created with the help of the computer. When we use the simulation the software package appears in the model, which simulates the operation of the system by having different sets of experiments on the computer with repeated playing of the simulated processes and phased detailing of the simulated subsystems.

The subject of simulation can be some complex system, the real object or process. The simulation method gives us the possibility to describe the nature of complex dynamic system by means of an iterative process of model development. In addition we should take into account the factor of randomness that allows us gradually improve knowledge about the system and to determine the further strategy of its development. Simulation models have broad applications area in solving tasks attached with the systems structure and their dynamics, prediction, planning, taking operational decisions, etc.

The universal nature of scientific intellectual innovation "simulation" stipulates its use in various subject areas. The stylistics of such texts in its composition differs primarily in the basic of subject vocabulary and the subject area and stylistic coloring of speech.

The work of Gabriel A. Wainer[14] is a clearly identified kind of a text discourse having its own communication strategies. In SID communicative competence is provided by possession of such communicative strategies based on the rules and schemas, which are constructed communicative event. Linguistic analysis of text in computer simulation modeling has shown that the structure of language is logic and plain, combined with figurative representation of the reported meanings and elements of interactive communication.

Along with such typical for this type of discourse features, like the dialogue, authorization, targeting, pragma-linguistics context has its invariant cognitive framework that implements a message function and variable dynamic system means of linguistic expression that realizes functions of the exposure. The impact is strengthening by the extra-linguistic visual means.

The tasks diversity and complexity of intercultural communication demand including in the specific object operating in a virtual environment of artificial intelligence.

Reflected signs of addressee's predictive cognitive model of the as cognitive style settings are: literacy/illiteracy, the presence/absence of special knowledge and other settings of the recipient with the appropriate knowledge level. The statements focus on author and recipient direct interaction, in order to cause the recipient interest. The recipient positioning information of the text, knowledge about the world interprets this action as a desire to convey the necessary information about the simulation, sufficient for its confident understanding. Addressor's factors are presented by related conceptual units with individual open type of authorship, for example, emphasizing of atypical for scientific style personal pronouns use ("I" along with the widespread use of the pronouns "it", "we").

In the syntactic text organization the sentences are declarative, interrogative, and imperative. For this type of texts discourse powerful explanatory-narrative complex carrying information about the innovation is typical, as well as complex sentences with the distinction between unknown and new information, the widespread use of infinitive and gerund in the function of the subject.

The rhetorical questions addressed to the reader are often used, along the questions of dialogue nature of the question – answer type with interrogative pronouns. The general direction of cognitive research process is characterized by the predominance of sentences with an interrogative pronoun "how" over the sentences imposing an interrogative pronoun "what". The cognitive research process directed not to the indication and identification of objects and processes, but their properties ways of functioning sufficiently disclosure.

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[14] *Wainer Gabriel A. (2009), "Discrete-Event Modeling and Simulation. A Practitioner's Approach. Computational Analysis, Synthesis, and Design of Dynamic Models Series", Series Editor Piter Mosterman, Natick, Conecticut, Taylor & Francis Group, LLC, 483 p.*

In the SID representing innovation "simulation" in the subject areas is: "Applications in Biology", "Models in Defense and Emergency Planning", "Models in Architecture and Construction"[15], along with the scientific content and methods of innovation updating illocutionary dominant policy declarations and directives are introduced. Their increased repetitiveness reveals a modal focus on enhancing cognitive and volitional interpretation mechanisms of the recipient, which makes pragmatic neutralization of the discourse inappropriate.

The sequence of sentences fixes the boundaries and succession of SID, associated with the description of the models and their updating in most cases. Explicit task assignment between sentences is expressed by preposition "for". The author describes the characteristics, parameters, advantages, prospects of innovative simulation method. For precisely definition of the terms the number of words explained with the help of gerund, common attributive constructions.

Scientific innovation, because of its universal character can be used in various subject areas, the number of texts can be quite large, but the texts themselves are so diverse that they are difficult to organize, and emphasize more or less regularly reproduced fragments types. Innovation "simulation" refers to such kind of innovation type. The number of texts containing the innovation varies in its composition due to the subject areas. The texts themselves are so diverse that they are difficult to organize, and allocate more or less regularly reproduced types of fragments. It concerns this type of innovation refers such as "simulation".

The style of the texts containing the innovation, its composition varies depending on the subject areas of its use. It refers to the basic subject lexis and traditional in this region of the stylistic speech coloring. The discussion of each subject area begins with specifying the stages of the research in the form of introducing the recipient to an active cognitive process. There is a problem of SID processing in stylistic genres and ideostyles, in terms of their impact on the communication process. We consider the ideostyle as system of logical-semantic representation modes of personal dominant meanings of the conceptual SID author's system. This one is objectified in aesthetic activity involving an individual transformation of linguistic expressions.

Ability to produce innovative concepts and the formation of relevant categories is a crucial part of the cognitive creative infrastructure of the human mind. Categories organizing the experience and knowledge, bringing them to some generalized categories or groups are necessary for innovation foundation and its knowledge implementation. We consider SID categories and their contents as the categorical innovation apparatus. Cognitive matrix of

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[15] *Wainer Gabriel A. (2009), "Discrete-Event Modeling and Simulation. A Practitioner's Approach. Computational Analysis, Synthesis, and Design of Dynamic Models Series", Series Editor Piter Mosterman, Natick, Conecticut, Taylor & Francis Group, LLC, 483 p.*

knowledge allows further understanding, classification and categorization on the principle of dichotomy (continuous – discrete) variables time/terms of subcategories of the main known creating models methods.

Categorization of innovation "simulation" in the English-speaking SID is considered on the basis of different modeling techniques depending on the state of variables and time and is carried out in the project according to specific visual images. Categorization of simulation methods is carried out in the cognitive scenario, where dichotomy is used as the basis: the continuous - discrete of variables reflecting the state of the object and time. Categorization on the basis of variable object/time is explained in the author's ideostyle as the matrix of the second rank possessing the ontological nature of category systems, reflecting an understanding of the state variable according to the type of temporal variable.

Each category is represented by built-in timing diagrams reflecting the understanding of verbal representation as text projection on flat geometric shapes. The specific of innovation is primarily reflected in its stylistic profile as a cognitive model of SID. As projections on the levels of language lexical, syntactic, semantic, and as extralinguistic, pragmatic, and other profiles can be considered[16].

Cognitive-semantic features of author's ideostyle can be traced by analysis of the SID constructions: the frequency of terms, phrases, and specific stylistic techniques, as well as on the frequency of references to the graphic images reflecting the mental representation of verbal text representation.

The stylistic profile of innovation, "discrete event simulation" reflects both the basic concepts of simulation modeling ("basic concepts of discrete event system specification (DEVS)"), and the necessary and sufficient minimum fuzzy syntactic and semantic volumes adequate language representation of a mental image, a cognitive model of the actual innovation. To account the peculiarities of the implementation of innovation in specific subject areas subject innovations profile may be used.

Table: *The lexical projection of stylistic innovation profile " DEVS"*

model	3725	Simulator	241	Complex	89	Binary	44
Figure	1425	Direction	236	Visualization	87	Interaction	40
Time	1164	Definition	235	Frame	85	Scheme	35
simulation	1161	Coordinator	226	Segment	84	configuration	34

[16]*Grigoryeva, V. S. (2007), "Discourse as an Element of Communicative Process: Pragmalinguistic and Cognitive Aspects", Tambov, Publishing house of Tambov State Technical University, 288 p.*

DEVS	967	Study	217	Entity	83	approximation	30
state	900	processor	210	concept	76	Hierarchy	30
value	790	dimensional	193	Mechanism	75	Validation	30
event	787	Step	190	Automata	73	Creation	29
message	607	application	180	Implementation	73	Digital	29
function	604	implements	180	Parallel	72	Defense	29
output	601	element	178	Software	71	Future	26
modeling	578	Level	177	Variables	70	Approximate	26
system	542	graph	173	Computing	70	Activity	26
transition	510	method	172	Solution	68	Research	25
process	483	phase	168	Construction	67	Cost	24
input	479	execution	168	Test	66	Frequency	21
CD++	451	structure	150	Constant	64	Framework	20
cells	441	structure	150	Error	64	Situation	19
change	420	information	135	Train	63	Technology	18
discrete	419	experiment	102	Science	62	Scale	15
Set	382	techniques	102	Row	61	V&V	13
result	367	computer	102	Communication	60	training	12
number	342	Field	102	Problem	57	Metodology	11
discrete-event	303	dynamic	102	Variable	54	Phenomena	10
component	300	algorithm	102	Description	54	Communities	10
network	287	algorithm	102	Approach	50	Accuracy	9
data	286	distribution	101	Scene	47	Effective	5
behavior	285	Cycle	89	Virtual	46		

For representation of ideostyle as the corresponding profile in different subject areas it can be considered as projections on the levels of language lexical, syntactic, semantic, and as extralinguistic, pragmatic, and other profiles. The main features of the innovation category are saved in its stylistic profile how key concepts inherent in the considered stylistic innovations of conceptual and terminological background and their use may be conceived by the intellect or transmitted or translated for research, storage or translation, artificial intelligence.

The lexical projection of stylistic innovation profile DEVS ("discrete event simulation") in the English language space is characterized by a significantly uneven distribution of categories used in SID to represent this innovation.

Word-concepts with a frequency from 200 to 3725 have main dominant meaning and represent the basis for conceptual components of the text structure creation. Region of words with frequency 200 - 30 define an auxiliary semantic component and contain meaningful words that form conceptual units defining the nature and characteristics of the dominant words in the conceptual area through content blocks filling with the meaningful words.
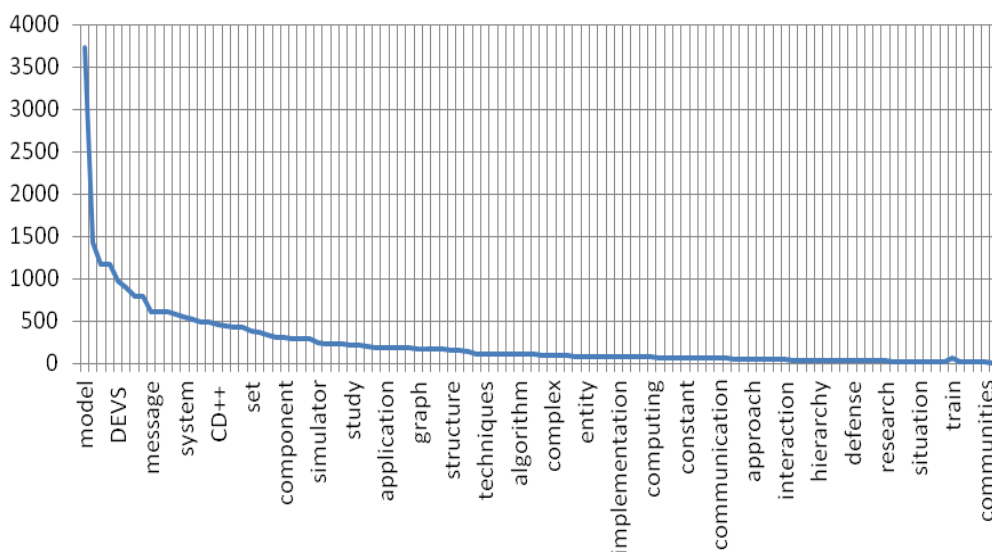
Figure 2 *- The frequency of innovation categories*

The area with frequency lower than 10 words contain a concept does not allow statistical methods to extract relevant information. These words are attributed to informational "noise" and are not used in further analysis. Inside areas the words frequency change is close to linear dependence and is well interpolated by the straight of dominant (keywords), the straight of the significant words, the straight of auxiliary words, straight of informational "noise" – NID is characterized by: the use of new terms, due to the stylistic limitations and author's peculiarities; the understanding and use of morphological and syntactic structures of mental language, forming a social-value rate of natural language use; the systematization the of graphic material use (formulas, diagrams, drawings).

Artificial intelligence in the mixed translation facilitates the solution denoted problems, based on the interaction of a triad: language, human, artificial intelligence. These factors are implemented in the communicative-speech activity.

Communication distortions arising in automatized discursive space are the result of features of active communicants' interaction, including lack of competence or lack of skill of technology use. In the course of discourses transformation the ideostyle of the sender impose on the mediator ideostyle hence the difficulty of identifying and preserving the author's style arises. The manifestation of the communication distortion in automatized environment combines the randomness and unpredictability of their occurrence. The use of "artificial intelligence" class models becomes sufficient for effectively overcoming of the professional intercultural communication barriers.

For the ideostyle study in the text and its representing in the translation it is necessary to set the dominant ideostyle features. The author's ideostyle is inherent the use of the cognitive conceptual models representing the meanings of discursive messages. It should be noted that the author's style is characterized by the use of various form of numerous illustrations with an extremely uneven distribution of them in the text volume. The choice of words is associated with the relevant concepts and possible referents. As the neutrality of presentation does not consistent with the emotional state of a person in some cases it is possible to use means of expression. In the process of creation or implementation of machine-translation programs, this factor should be taken into account.

Cognitive-semantic a sign of the author's style is also the development of cognitive mental structures with parallel dynamic transformation figurative projections in two-dimensional space. The first stage of cognitive thinking is the mental picture of the tasks and its schematic depiction. In the result, produced texts are interpreted by parallel cognitive processes of textual representation. The synchronously developing appropriate conceptual graphical images corresponding to mental representations are caused by the comprehension of the text content and participate in this process. This author's feature, in particular, finds its expression in the following fragments of text that reveal the dynamics of the models. In the second stage of cognitive thinking the experimental frame filled with content is used.

Previous image is transform into the following one, supporting mental performance caused by verbal representation of the text meaning. From the analysis of the text we can observe the cognitive-semantic features, the combination of consistency of presentation with a consistent meaning representation of key moments characterizing the author's ideostyle. In the text we find 555 images and 1375 references to these images. Thus, the author uses each link for the cognitive analysis of the text for 2,477 times. The diagram analysis shows the presence of three ranges that are significantly differ from each other. The maximum value has a range from the average particular 69,500 due to a number of factors.

The author's ideostyle influences the SID translation quality, technical capabilities, features of machine translation and ideostyle of the translator, this phenomenon represents badly studied field of translation. For reliable information transmission and preservation of author's style we assume the preservation of the neutrality of the interpreter, therefore, definition of ideostyle of the author and the translator, their verbal, verbal-symbolic verbal-figurative phenomena is an important stage of translation in its initial stages. If not to take

into account these specific discourse features the translation will be difficult. Thus, SID is a means of representation of scientific innovations in various fields of modern society. The complex nature of SID is stipulated by the accumulation of various intentional discourses. Considered discourse requires further study as new phenomena of linguistic research, identified an appropriate term.

3. Conclusion

Analysis of SID with innovation "simulation" with the help of effective methods for solving analysis tasks and complex systems synthesis, as one of the computer simulation types has shown that the language structure possesses logic and clarity of narration combining the figurative representation of the reported meanings and elements of interactive communication. SID is rich in special terminology, acronyms, mathematical formulas and algorithms, drawings, diagrams, photographs, which is an integral part of SID.

The SID regular structure simplifies the access to knowledge sections and essentially is a frame. Slots of this frame from section to section are filled with new content. SID is characterized by powerful expository and narrative complex, carrying information about innovations; complex sentences, with the structure distinguishing known and new information, the widespread use of infinitive and gerund forms in the function of the subject.

Cognitive research process SID mostly is not aimed the specifying and defining objects and processes, but sufficiently thorough disclosure of their properties and ways of functioning. Moral imperative sentences are common for SID. The author's ideostyle inherits the use of the cognitive conceptual models representing the meanings of discursive messages. Cognitive-semantic features of author's ideostyle can be traced to analysis of the frequency words, phrases and stylistic devices in SID texts.

Thus, "innovation" is understood as a linguistic-cultural concept of objectification of the "new" generated in the form of a language reflect of the complex creative, theoretical and subject practical activities of the person, the convert of the creative ideas into a product of the knowledge increment with its subsequent realization.

The category of "innovation" is modeled by the frame semantic fields subcategories: " discovery ", "patent", "innovation" "novation," "new product", "modify", "change the old to the new" and is reflected in SID. Scientific-innovative discourse is regarded as a complex macrostructure of language units having substantial integrity, syntactico-semantic cohesion of its components and the external information content. The discourse is coordinated with the type of communication and is specific to the "computer virtual reality."

The objectives and content of innovation, the conditions of its actualization and realization generate various styles and genres of SID possessing a specific syntactic organization,

semantic reference, morphology, and vocabulary. The genre stylistics of scientific-innovative discourse is presented by multidimensional knowledge reflecting cognitive interrelated contexts. Cognitive matrix is a format of a multidimensional knowledge; it combines the contexts, brings together the knowledge of different phenomenon aspects and gives access to the different conceptual areas.

This model in the process of the major linguistic structures analysis is not stored in person memory; it requires formalization and clustering of multidimensional knowledge in the way of close interaction with the rapidly developing artificial intelligence reflecting on a person's thinking its machinery patterns of tasks solving previously considered as the area of mental representations.

References

Akopova, S.E., Przhedetskaya, V.N., 2016. Imperative of State in the Process of Establishment of Innovational Economy in the Globalizing World. European Research Studies Journal, 19(2), 79-85.

Arutyunova, N.D. 1990. Linguistic Encyclopedic Dictionary", M., pp. 136-137.

Chernyavskaja, V.E. 2009. Iinterpretation of Scientific Text: a Manual for High School, 5th Ed. Stereotype, M., KomKniga, 128 p.

Epifanova, T., Romanenko, N., Mosienko, T., Skvortsova, T. and Kupchinskiy, A. 2015. Modernization of Institutional Environment of Entrepreneurship in Russia for Development of Innovation Initiative in Small Business Structures. European Research Studies Journal, 18(3), 137-148.

Evdokimova, N.V., Birukov, N.G. 2015. The Convergence of Foreign Language Disourse in Shaping the Educational Environment: Functional-Communicative Aspect. Science and Practice: new Discoveries. Proceedings of Materials of the International Scientific Conference. Editors: I.M. Shvec, L.A. Ismagilova, V.A. Gur'eva, E.A. Telegina, V.I. Sedenko. Kirov, pp. 595-604.

Evsukova, T.V., Mahnickaya, E.Y. 2009. Terminology and vocabulary items in modern economic discourse. Proceedings of the SFU. Philological science. No. 2, pp. 91-100.

Firescu, V., Popescu, J. 2015. The Costs of Quality: An Important Decision Tool. International Journal of Economics and Business Administration, 3(4), 44-52.

Frank, V.E., Mashevskaya, V. O., Ermolina, V.L. 2016. Innovational Mechanism of Implementation of Cluster Initiatives in Business. European Research Studies Journal, 19(1), 179-188.

Germasheva, T.M. 2010. A Study of linguistic and paralinguistic characteristics of blog discourse, Proceedings of Russian state pedagogical University named after A. I. Herzen, St. Petersburg No. 126, pp. 150-155.

Grigoryeva, V.S. 2007. Discourse as an Element of Communicative Process: Pragmalinguistic and Cognitive Aspects. Tambov, Publishing house of Tambov State Technical University, 288 p.

Jorgensen, M., Phillips L. 2004. Discourse Analysis as Theory and Method. Kharkov, Gumanitarnyy Tsentr, 336 p.

Keisidou, E., Sarigiannidis, L., Maditinos, D. and Thalassinos, I.E. 2013. Customer satisfaction, loyalty and financial performance: A holistic approach of the Greek banking sector in Marketing Intelligence and Planning, 31(4), 259-288, Emerald Group Publishing.

Kotelnikova, E.V. 2014. Study of Scientific-Innovative Discourse of Intercultural Communication in the Cognitive Aspect: Monograph, Rostov-on-don, Publishing House of Rostov State University of Economics (RINH), 184 p.

Kormishkin, D.E., Sausheva, S.O., Gorin, A.V and Zemskova, S.E. 2016. Innovation and Investment Safety as the Condition for Neo-Industrial Development. European Research Studies Journal, 19(3) Part A, 94-109.

Makarov M. L. (2003), Fundamentals of the theory of discourse. – M, Gnosis, 280 p. The New European Strategy "Europe 2020", URL: http://eulaw.ru/content/307 (reference date: 29.08.2016).

Novokreshchenova, A.O., Novokreshenova, A.N., Terehin, E.S. 2016. Improving Bank's Customer Service on the Basis of Quality Management Tools. European Research Studies Journal, 19(3) Part B, 19-38.

Stroeva, O., Lyapina, I., Konobeeva E. and Konobeeva, O. 2015. Effectiveness of Management of Innovative Activities in Regional Socio-Economic Systems. European Research Studies Journal, 18(3), 63-67.

Stroeva, O.A., Mironenko, V.N., Lyapina R.I. and Petrukhina, V.E. 2016. Peculiarities of Formation of Socially Oriented Strategy of Economic Growth of National Economy. European Research Studies Journal, 19(2), 161 – 170.

Theriou, G.N., Aggelidis, V. and Theriou, N.G. 2014. The Mediating Effect of the Knowledge Management Process to the Firm's Performance: A Resource-Based View. International Journal of Economics and Business Administration, 2(1), 87-114.

Theriou, G.N. and Aggelidis V. 2014. Management Accounting Systems, Top Management Team's Risk Characteristics and Their Effect on Strategic Change. International Journal of Economics and Business Administration, 2(2), 3-38.

Wainer, G.A. 2009. Discrete-Event Modeling and Simulation. A Practitioner's Approach. Computational Analysis, Synthesis, and Design of Dynamic Models Series", Series Editor Piter Mosterman, Natick, Conecticut, Taylor & Francis Group, LLC, 483 p.