Determining the Psychological Portrait of Members of Web Communities through Socionic Analysis

Alexander Morushko ^[0000-0001-8872-2830], Nataliia Khymytsia ^[0000-0003-4076-3830],

and Nataliya Shakhovska [0000-0002-6875-8534]

Lviv Polytechnic National University, Lviv 79013, Ukraine

Abstract. The study considers the problem of determining the psychological type of a person without personal contact, through social networks. Techniques and methods of visual and verbal determination of human sociotype by means of socionic analysis are described. Practical examples of this method are given. They clearly demonstrate that knowledge of certain features of the body or style of human speech, with a high probability, helps to predict how they may behave in certain situations. Using the method of socionic analysis in determining the psychological type of person gives the opportunity to choose a business partner or friends to communicate on social networks by express method, remotely. This saves time spent organizing your personal acquaintance. In today's environment, this is an undeniable advantage, since you do not have to spend time and money on travel, and also endanger yourself to pick up a viral disease through public places.

Keywords: Web Communities, Social Networks, Psychological Type, Socionic Analysis, Sociometry, Visual Assessment, Verbal Assessment, Jung Basis, Dichotomous Features, Psychological Functions.

1 Introduction

When more and more people in the world work remotely, the ability to determine a person's psychological portrait becomes more important. In addition, to certain benefits, the globalization of the world carries with it considerable risks, including a health threat. The use of verbal socionical analysis methods can facilitate the selection of business partners for collaboration and significantly optimize the exchange of useful information with the other partners, avoiding direct contact, and avoiding dangerous infections.

For modern managers, it is important to have a certain psychological socionical toolkit. It is necessary both for the proper assessment of their capabilities and for the evaluation of the potential of future partners. We do not consider this method to be universal, but its use can bring significant benefits.

Copyright © 2020 for this paper by its authors. Use permitted under Creative Commons License Attribution 4.0 International (CC BY 4.0). COAPSN-2020: International Workshop on Control, Optimisation and Analytical Processing of Social Networks

2 Related Works

Modern processes of globalization and collective communication have extremely actualized the problem of socionic diagnostics, the basis of which is laid in the works of K. Jung [1] and A. Augustinavichyute [2]. The scientific works present various directions of application of socionic analysis techniques for obtaining new knowledge and data about business partners. In particular, R. Blutner and E. Hochnadel, in their work demonstrate that quantum theory, as a mathematical construction, provides a natural framework for giving a sound foundation to C.G. Jung's theory of personality [3]. The results of the practical application of socionic technologies are presented in the work of A. Boukalov, O. Karpenko [4]. In the study of A. Boukalov, O. Karpenko and G. Chykyrysova the experience of using socionics for predicting interpersonal relationships is analyzed [5].

O. Morushko, S. Andreychuk have justified in their work that knowledge of the typology of Jung and socionics allows not only to better understand the mechanism of mutual relations between two specific people but also to purposefully form psychologically compatible small social groups (collectives) capable of performing the tasks they have been assigned [6]. Researchers O. Morushko and N. Khymytsia, propose the use of the method of socionic analysis in business communication for the optimal choice of business partners [7, 8]. The problems of using the methods of practical psychology, in particular socionics, are also covered in the scientific works I. Khomytska, V.Teslyuk, O. Morushko, A. Holovatyy [9] and O. Morushko, T. Podolyak [10].

Language and socio-demographic differences in Internet communications are covered in the scientific publications of S. Fedushko [11, 12]. Also, for our study, valuable scientific works on the methods of Determining Information Support of the Web Community User Personal Data Verification System [13]. The studies of A. Peleshchyshyn, V. Vus, O. Markovets, S. Albota analyze a special system of indicators of user activity and investigate a separate group of signs based on linguistic techniques of influence purposefully used in online communication [14-16]. The works of O. Markovets, R. Pazderska, N. Dumanskyi, I. Dronyuk are devoted to the analysis of rules of information submission in online communities. The methods presented by the authors will help to determine the level of trust in web users, such as monitoring, attestation, organization, and personification [17].

The purpose of our study is to apply a method of socionic analysis to determine the psychological portrait of participants in WEB communities remotely, based on their pictures and messages. This will optimize communication and identify the areas of business cooperation that will be most effective.

3 The algorithm of visual-verbal diagnostics of the user of the web community

It is well-known that we usually form our opinion about another person based on information obtained through the basic sensory organs: sight, hearing, smell, taste, and touch. At the same time, 80-90% of this information is obtained from our view, although information from the other four receptors is also important and decisive for us. In situations where we do not have direct human contact, we have to do our analysis solely on our eyesight, visual analysis, or our strong conscious functions when talking about verbal analysis. If in the visual analysis we can make certain generalizations because we are dealing with objective data - face shape, body constitution, etc., then in verbal analysis we are deprived of this. Therefore, the personal experience of the researcher comes first - the greater it is, the more reliable results he can get. There can be no one-size-fits-all method of verbal analysis. According to socionic theory, there are 16 basic sociotypes, that is, 16 radically different models of information retrieval and processing. Therefore, everyone should develop their own tools that are best suited to them, according to their sociotype [2].

There are three basic methods for determining the psychological type of person by socionic methods. It is visual, verbal, and testing. Of course, the best results can be obtained by using all three methods at the same time. However, this is not always possible.It is clear that the third method - testing - can be applied only with the consent of the person whose sociotype we define. This is usually possible if a person is applying for a vacant position, and testing for the determination of a sociotype is one of the conditions for participation in the competition for the vacancy. But even in this case, we cannot be fully convinced that we have obtained true data as a result of testing. That is why verification of these results occurs during interviews, where we can apply both visual and verbal analyzes at the same time.

In today's business communications, there are situations that for some reason faceto-face meeting with a business partner is impossible, but we need to make an important decision relatively quickly about the probability of productive collaboration with a person we do not personally know. In such a case, we are obviously limited to the possibility of using only visual and verbal methods.

The visual method of determining the sociotype is that the hypothesis of the type of information metabolism (TIM) of the psyche is made on the basis of external signs: "The mutual penetration of bodily and mental features is so deep that on the properties of the body we can not only draw far-reaching conclusions about the quality of the mental but also on psychological specificity we can judge the corresponding bodily forms" [1].

We make certain conclusions about the face shape, pace, posture, body structure (its proportions or disproportions), the static or dynamic of the poses that the object under study demonstrates. We then transform these observations into four dichotomous Young's features that ,in our opinion, are peculiar to this object. We can then transform our findings into one of sixteen basic psychotypes.

As for the procedure for determining dichotomous features, in our opinion, it is not significant. It is important not to make mistakes in determining the leading features.

Therefore, in the process of diagnostics, each researcher must come out of their strengths. And above all, he must be convinced that he has previously been able to accurately identify his own TIM.

The basis for creating a working hypothesis of the TIM of the object under study are typical features - external similarity to previously identified people, asymmetry of face and body, especially smile, facial expressions, gestures, poses, body structure, handwriting, clothing, tone, and volume of speech, words and more. It should be remembered that there are genetic and psychological distortions of the type. Therefore, it is desirable to confirm the visual findings by verbal analysis. How to visualize the object under study is illustrated in Table 1.

Visual sign	A visual feature	Functio n	A visual feature	Function
Behavior in a new environment	confident, wants to be the center of attention	extraver sion	waiting, desire to be in the shade	introversion
Physique	center of gravity below the waist, figure tight and clumsy	rational	center of gravity above the waist, figure stream- lined, smoothed	irrational
The shape of the upper part of the forehead	oval, moving lower part of face	ethics	rectangular, movable upper face	logic
Face shape	round, square, oval	sensor	elongated, entagonal, droplet-shaped	intuition

Table 1. Visual features for determining the Young's basis

This table provides some options for making a preliminary version of a possible sociotype of the person we want to explore based on visual assessment. Of course, there can be many more features, but this is an individual toolkit. It must, among other things, take into account the researcher's personal sociotype, his qualifications, life experience, and the like. Suppose that the object under study behaves confidently in society, has a center of gravity below the middle, an oval shape of the upper part of the forehead, and round face shape. From Table 1. we can see that the following dichotomous features of Young correspond to these visual features: extraversion, rationality, ethics, and sensory. From socionic theory, it is known that the rational (the first) function is logic/ethics. Therefore, the complementary (second) function will be the sensor. Thus, our version of the TIM's of the object under study will be an ethical-sensory extrovert (ECE), or "Hugo" (the most commonly used alias). It is clear that it

is better to watch the object of study live to diagnose it. However, it can be argued with a fairly high probability that photos can be diagnosed. But it is necessary that these photos meet certain criteria: they were quite clear, preferably in profile and full face, without unnecessary posing for the camera. The method for determining the sociotype of a photo available on Facebook and Instagram will be similar to the one described above.

Example 1.



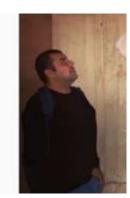


Fig. 1. Photo of a logic-intuitive extrovert in full face. Fig. 2. Photo of a logic-intuitive extrovert in profile.

From the above photos we can conclude that the person who is present on them, has a pentagonal shape of the face, the upper part of the face is more mobile, the figure is tight, the behavior is confident, socially oriented. So this is intuition, rationality, logic, extrovert. These criteria are met by a sociotype of logically-intuitive extrovert -LIE ("Jack London").





Fig. 3. Photo of ethics-sensory extrovert in full face. Fig. 4. Photo of ethics-sensory extrovert in profile.

The above photos show that the respondent has an oval shape of the upper part of the forehead, an oval face, closer to a round, tight figure and behavioral reactions oriented to the outside environment (desire to be in the spotlight). So we make the assumption that this person is an ethic, a sensory, a rational, an extrovert. These characteristics correspond to the sociotype of ethical-sensory extrovert - ECE ("Hugo").

If, however, we are not sure that the respondent's photo on the avatar is genuine, or in the absence thereof, we will have to try to determine the sociotype solely by the method of verbal analysis. We will be interested in the tone and loudness of the language, words and language turns, the tempo rhythm of speech, information saturation and more. When we have to focus solely on text, we can try to determine the leading features of the object under study by using word markers. According to the frequency of their use, we can draw some conclusions about the sociotype of the subject (see Table. 2).

Function	n Words markers that correspond to it		
Business	Act, activity, efficiency, method, object, work, subject, procedure, process, work,		
logic	case, subject, technology		
Structural	Abstract, adequate, analysis, aspect, balance, hierarchy, order, correctness, system,		
logic	statistics, structure		
A strong- Aggression, security, repulsion, impact, deformation, vigor, protec			
willed sensor	lence, restriction, space, force, pressure		
Sensor of	Atmosphere, rest, harmony, design, comfort, convenience, comfort, softness,		
sensation	pleasantness, tranquility, concern, quality		
Ethics of	Ethics of Excitement, excitement, apathy, grief, depression, drama, energy, enthusiasm,		
emotions	citement, inspiration, panic		
Ethics of	Altruism, polite, sensitive, kind, ethical, moral, unkind, unreliable, intolerant, tol-		
relations erant, kind			
Intuition of	Adventurer, agitation, joke, virtual, skill, probability, danger, perspective, imagina-		
possibilities	tion, fantasy, quality		
The intuition	Actual, now, catastrophe, illumination, foresight, perspective, event, whim, fore-		
of time	cast, equilibrium		

Table 2. List of word markers for diagnosing socionic functions

The proposed table contains a far from complete list of word markers. However, in our opinion, with their help it is possible to determine the tone of the language of the object under study, and therefore the leading mental functions.

Let's look at a specific example of how this method works.

"We cannot expect mercy from nature. To take them by force is our task!"

The first sentence of this statement testifies to the sensory nature of its author. The second specifies - it is a strong-willed sensor (to take by force). The intonation of the sound of the utterance suggests an extraversion. Finally, this phrase indicates that its author clearly neglects the ethics of relationships because it is his painful function (he is a logic). It is easy to guess that V. Lenin, who owns the above phrase, was a sensory-logical extrovert ("Sociotype Zhukov"). The use of verbal analysis requires the researcher to understand clearly the difference between mental functions. This approach also gives an awareness of which channel of reception and processing of information each of these functions is responsible.

Let's go back to example 1 and assume that there are no photos, or they are not true. Let's analyze the linguistic and stylistic features of the respondent's Facebook language.

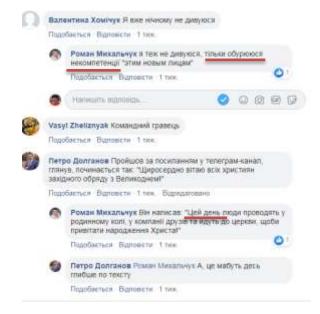


Fig. 5. Discussion on the Facebook page, with marker words that are characteristic of a logic-intuitive extrovert.

) [-	ан Нагнибіда Там ще за статтю треба заплатити до 5000.00. не бачу кому яка вигода			
	Подо	бається · Відповісти · 8 тиж.			
		Роман Михальчук Це в Україні в більшості випадків треба платити. А за кордоном є безкоштовні. Маю приклад колег, які в американських і західноєвропейських журналах публікувалися безкоштовно.			
		Подобається · Відповісти · 8 тиж. · Відредаговано			
	(Руслан Нагнибіда Книги видавайте! Книги!)			
		Подобається · Відповісти · 8 тиж.			
		Роман Михальчук Руслан Нагнибіда з книгами безкоштовно не вийде))			
		Подобається · Відповісти · 8 тиж.			
		Руслан Нагнибіда Роман Михальчук вчіться у колег!)			
		Подобається · Відповісти · 8 тиж.			
		Роман Михальчук Руслан Нагнибіда безумовно			
		Подобається · Відповісти · 8 тиж.			
	0	Maria Raucher Osborn Victoria Matskevych Rogofiactuca: Bignosictiu: 6 text.			
	Ð	Vasyl Zheliznyak Шкода, що немає літніх шкіл внечення Голодомору, Депортації українців до Сибіру і тд			
		Raphence Baroecte 6 tex.			
		Роман Михальнух Vasyl Zheszny ак С й так. Зокремя, наша колега Віталіна Данильнук минулого року брала участь у школі з вмечення Голодомору.			
		Подобається Відповісти 6 так.			
		Sasyl Zheliznyak to pechanyil i lx.			
		Подобасться Відтовісти 6 тих.			
		Роман Михальнук Vasy! Zheitznyax кожен дослідник має свою сферу зацікавлення.			
		Падобесться Відтовісти б тих.			
		\varTheta (Hannah Annana). 🕐 O 🛛 O 🖓			
	T	Василь Петрович Петрук А ми ще пам'ятасью розповіді дідусів і бабусь			
		Подобається Відповісти 6 тих.			

Fig. 6. Discussion on the Facebook page, with marker words that are characteristic of a logicintuitive extrovert.

The phrase "outraged by incompetence" indicates rationality (the main result, not the process), "this day" refers to a specific time (intuition of opportunity). The terms "researcher, the field of interest", "must pay", "will not work for free" indicate the business logic of the respondent, the word "definitely" has a clearly extrovert tone. So our respondent is rational, intuitive, logical, extroverted. Thus, we have verified our previous conclusion that we are dealing with a logic-intuitive extrovert.

The strongest mental functions of LIE (Jack London) are business logic and intuition of time. Therefore, as a rule, these people are distinguished by good business characteristics, are able to effectively organize production processes. Representatives of this type are socially active and very enterprising. Sometimes they are so passionate about work that they forget about their own health, appearance, their own comfort and diplomacy in relationships. This behavior is due to the fact that the most vulnerable mental functions of LIE are the sensory senses and the ethics of relationships.

In the same way, we perform a verbal analysis of the second example.

2	Yanina Sokolova ♥ Олег Константин якщо так думати то взагалі можна нічого не робити. Я знаю шо є результат. Навіть подивитися і переконатися що з росіянами ніколи знову - це теж результат
	Подобається · Відповісти · 5 дн.
٩	Олег Константин Yanina Sokolova Ну то дивлячись якого результати ви бажаєтеЯкщо ваша ціль вічне висміювання один одногото так ефект є
	Подобається · Відповісти · 5 дн.
٩	Олег Константин Yanina Sokolova ніколи знову ЩО?Вони наші сусіди і нікуди не дінутьсяне випаруютьсяне зникнутьЩо ви маєте на увазі під цим " Ніколи Знову"
	Подобається · Відповісти · 5 дн. · Відредаговано
2	Yanina Sokolova 오 Олег Константин ніколи знову вірити їм і будувати дружбу поки у Кремлі сидить оте чмо не вийде.
	Подобається · Відповісти · 5 дн.

Fig. 7. Discussion on the Facebook page, with marker words that are characteristic of an ethical-sensory extrovert.

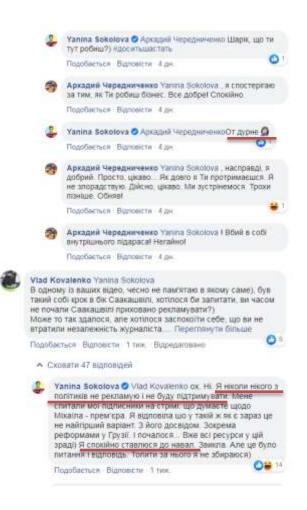


Fig. 8. Discussion on the Facebook page, with the words that are characteristic of the ethicssensory extrovert.

The word "result", used twice in one message, signals rationality (the main result, not the process). "If you think so," "Never trust them again" are phrases that indicate extraversion by their categorical character. The phrases "while the idiot is sitting in the Kremlin" and "stupid" - a manifestation of emotions (ethics of emotions). "I do not advertise any politicians", "I calmly treat invasions" are phrases that indicate the sensory sensation. So, the dichotomous features of Jung in the respondent are rationality, extraversion, ethics, sensory. These traits correspond to the ethics-sensory extrovert - the sociotype of Hugo. So we verified our previous assumption.

For ESE ("Hugo") the strongest mental functions are the ethics of emotions and the sensory senses. Therefore, people with this sociotype have a genuine, direct behavior, the ability to recharge other positive emotions, to create for themselves and their

immediate environment comfortable physical and psychological conditions of work and rest. Determined, attentive to detail. Often, several cases are handled at the same time. They best implement themselves in the social sphere. The disadvantages of this sociotype include the poorly developed systemic thinking and the ability to plan time to accomplish what is planned. This is due to the fact that the weakest psychic functions of this sociotype are intuition of time and structural logic.

4 Results

As a result of socionic analysis, we came to the conclusion that in the first case we were dealing with a logic-intuitive extrovert (LIE) and in the second case we were dealing with an ethical-sensory extrovert (ECE). Each of these sociotypes, according to socionic theory, has its strengths and weaknesses. They can be clearly presented in the form of a table, which will indicate their main psychological characteristics (see table. 3).

The name of the sociotype	Strong features	Features that suit them	Weak features	Features that suit them
LIE	Business logic, intuition of time	Good business acumen, ability to effectively organize production processes, high social activity, entrepreneurship	Sensory sensation, ethics of emotions	Ability to take care of one's own appearance, health, comfort, diplomacy in relationships
ECE	Ethics of emotions, sensory sensations	Honesty, direct behavior, ability to recharge others with positive emotions, create comfortable working and leisure conditions for yourself and your surroundings	Intuition of time, structural logic	Weak systemic thinking, trying to do several things at the same time, inability to properly plan your time

Table 3. Characteristic mental features of diagnosed identified sociotypes

As can be seen from Table 3, each of the described sociotypes has its own strengths and weaknesses. Therefore, the correct line of conduct in dealing with them will be an emphasis on the use of their positive character traits. At the same time, you should also keep in mind their areas of uncertainty and try to focus as little as possible on them.

5 Conclusions

In the conditions of the dynamic development of modern society, rational use of its time becomes more and more important. This becomes possible when we are clearly aware of what we want and who can become our resource in achieving the goal. We are becoming more dependent on other people, which is why the ability to understand their hidden qualities comes to the fore. It is impossible to imagine a successful modern manager who would not possess at least the basics of practical psychology.

The socionics is one of the divisions of modern applied practical psychology. Knowledge of its theoretical foundations makes it possible to achieve considerable success in the selection of optimal staff for vacant positions in teams, to form such teams under a specific leader, to form around a favorable information field. Communication is not a luxury, but a vital necessity of every person. That is why each of us has the right to choose for ourselves the communication and collaboration of the very people with whom this joint work and communication will be the most productive and comfortable.

The use of methods of socionic analysis in determining the mental characteristics of other people is not only useful in terms of building optimal communications. It also enables us to better understand ourselves, our strengths and weaknesses, to understand in which industries we are more likely to realize ourselves, and in which we need to work on our development.

In this article, we have been able to identify the socio-types of participants in WEB communities such as Roman Mykhalchuk and Yanina Sokolova using visual and verbal socionic analysis methods, using data found on Facebook and Instagram. Information posted by users on their Facebook and Instagram pages gives them an accurate psychological portrait.

It should be noted that there are no universal methods that each of us could apply to any individual and situation. The existence of 16 basic sociotypes suggests that there will also be 16 different models, 16 different approaches by which socionic analysis of other people can be conducted. Which one to choose depends on the particular sociotype of the researcher. However, socionic theory provides fairly clear criteria for each of them, on which particular features should be based on such activities.

6 References

- 1. Jung, C.G.: Psychological Types. In: Princeton University Press, 988 p. (1976).
- 2. Augustinavichyute, A.: Socionics. Introduction. In: Terra Fantastica, 448 p. (1998).
- Blutner, R., Hochnadel, E.: Two qubits for CG Jung's theory of personality. Cognitive Systems Research 11 (3). pp. 243–259. (2010).
- Boukalov, A.V., Karpenko O.B., Chykyrysova, G.V.: Effective Management and Staff Consultation with the use of Socionics Technologies. In : Psychology in the new Europe: methodology and funding, Krakow, Poland, p. 28. (2005).

- 5. Boukalov, A.V., Karpenko, O.B.: Socionics: the effective theory of the mental structure and the interpersonal relations forecasting. In : Psychology in the new Europe: methodology and funding, Krakow, Poland, p. 34. (2005).
- Morushko, O., Andreychuk, S.: Definition of integral sociotype in small groups by the method of socionics analysis. The Scientific Bulletin of UNFU. Vol.26, 398-404. (2016).
- Morushko, O., Khymytsia, N.: Employment the method of socionics analysis in business communication. In The Scientific Bulletin of UNFU. 2017. Vol.27 (2), 186-188. (2017).
- Morushko, O., Khymytsia, N.: Determination of integral type of collective using methods of practical psychology. In: The materials of the 8 th International Scientific Conference on Information, Communication, Society, ICS 2019, May 16-18, Lviv Politechnic Publisher, Lviv. pp. 185-186. (2019).
- Khomytska, I., Teslyuk, V., Holovatyy, A., Morushko O.: Methods, models and means of the system for differentiation of phonostatistical structures of engglish functional styles. Development of methods, models and means of authorship attribution of a text. In: Eastern-European Journal of Enterprise Technologies. № 3/12 (93). pp. 41–46. (2018).
- Morushko, O., Podolyak, T.: Creating a favorable social and psychological climate as an element of organizational culture. In: The materials of the 5 th International Scientific Conference on Information, Communication, Society, ICS 2016. pp. 338-339. (2016).
- Fedushko, S. Development of a software for computer-linguistic verification of sociodemographic profile of web-community member. Webology 11 (2), article 126 (2014).
- Fedushko S., Kolos S., Malynovska Yu. MBTI Principles in Detecting Emotional Manipulators among Digital Platforms Users. Proceedings of the International Workshop on Conflict Management in Global Information Networks (CMiGIN 2019), Lviv, Ukraine, November 29, 2019. CEUR-WS.org, Vol-2588. pp. 346-359. (2020) http://ceurws.org/Vol-2588/paper29.pdf
- Korobiichuk, I., Fedushko, S., Juś, A., Syerov, Y.: Methods of Determining Information Support of Web Community User Personal Data Verification System. In: Szewczyk R., Zieliński C., Kaliczyńska M. (eds) Automation 2017. Advances in Intelligent Systems and Computing, vol. 550, pp. 144–150. Springer (2017). DOI: 10.1007/978-3-319-54042-9_13.
- Peleshchyshyn, A., Vus V., Markovets O., Albota S.: Identifying Specific Roles of Users of Social Networks and Their Influence Methods. In: Proceedings of the 13th International Scientific and Technical Conference on Computer Sciences and Information Technologies, CSIT 2018, pp. 39–42. Lviv (2018). DOI: 10.1109/STC-CSIT.2018.8526635.
- Peleshchyshyn, A., Vus, V., Albota, S., Markovets, O. A Formal Approach to Modeling the Characteristics of Users of Social Networks Regarding Information Security Issues. Advances in Intelligent Systems and Computing. International Conference of Artificial Intelligence, Medical Engineering, Education, AIMEE 2018. Vol.902, 2020, pp. 485-494.
- Trach, O., Peleshchyshyn, A.: Development of directions tasks indicators of virtual community life cycle organization, International Scientific and Technical Conference "Computer Sciences and Information Technologies, pp. 127-130. (2017).
- Markovets, O., Pazderska, R., Dumanskyi, N., Dronyuk, I. Analysis of citizens' appeals in heterogeneous web services CEUR Workshop Proceedings Volume 2392, 2019, Pages 184-198 1st International Workshop on Control, Optimisation and Analytical Processing of Social Networks, COAPSN 2019; Lviv; Ukraine; 16 May 2019 through 17 May 2019; Code 149063. (2019).