Information Technology Optimizing the Structure of the Collective Using the Methods of Practical Psychology

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Abstract

The formation of a team that is optimal in structure and the qualitative selection of its participants is one of the most important tasks of personnel management. From the psychological compatibility of the team, its ability to work in a team and solve the results set before it depends on the effectiveness of this team, its stress resistance and stability.

One of such methods which becomes more, and more application is formation of collective according to theory of socionic compatibility of its members. This method is based on determining the sociotype of all team members, determining the integral type of the team, as well as establishing the degree of compliance of this team with the tasks assigned to it. The advantages of using this method are its relative ease of use and the possibility of personal selection of team members for specific tasks, predictability of behavioral reactions of such a team and efficiency in work. The only caveat when using this method is the condition of qualification and experience of a specialist who uses this method in practice.

The use of information technologies to optimize the structure of teams by methods of practical psychology accelerates and simplifies the process of processing data both on personal composition and, if necessary, optimal rotation within teams and in determining the optimal leader in these teams. The introduction of these technologies into everyday practice will promote wider use of socionic methods of diagnostics of collectives for further optimization of the process of their life.

The authors' proposed method of improving team formation according to the theory of social compatibility of its members takes into account the specifics of the IT field and makes it easier to obtain and process the data obtained

Keywords

Team formation, team, practical psychology, socionics, sociotype, integral type, information technologies, optimization of team structure

1. Introduction

The basis of human life is material production, designed to satisfy basic needs in the form of finished products. The main unit of such production are labor collectives that are directly involved in its organization. Therefore, the issue of rational construction of such collectives is constantly in the field of view of society.

The optimal functioning of production teams depends on many factors. In particular, it is satisfaction with the results of their work, a favorable moral and psychological climate and the possibility of maximum realization of their potential abilities.

These conditions can be achieved by using methods of practical psychology [6, 8]. Conscious selection of a psychologically compatible team not only improves the overall compatibility of the team,

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but also contributes to the optimal distribution of group roles and the formation of the optimal leader of this team. Accordingly, the formation of an effective team and the choice of the optimal leader is an urgent task of today for many organizations and firms.

Consequently, the object of the study is the process of optimizing the structure of the team using the methods of practical psychology, and the subject of the study are models and means of information technology to optimize the structure of the team using the methods of practical psychology.

The purpose of the work is to automate the process of optimizing the structure of the team using the methods and developed means of information technology.

To achieve this goal, you must:

- Develop models and methods for optimizing the structure of the team using methods of practical psychology.
- Develop the structure and algorithms for the functioning of IT tools to optimize the structure of the team using the methods of practical psychology.
- Development of software IT optimization of the team structure using methods of practical psychology.
- Testing of the developed IT optimization of the team structure using the methods of practical psychology.

The structure of the article contains the following sections: information search results was carried out in the first section, in the second section, the main components of the information technology for optimizing the structure of the team using the methods of practical psychology were developed and formalized, the third section of the work includes the developed IT methods and models, and the fourth section describes the developed IT software tools for optimizing the team structure using the methods of practical psychology, the fifth section contains the results of optimizing the structure of the team using methods of practical psychology using built IT.

2. Information search results

In the process of research and formation of effective teams use the method of sociometry, which was developed by J. Moreno [14, 15]. The method of sociometry is used in the study of emotional and psychological relationships in the organization. The sociometric technique aims to study group differentiation. The use of sociometry makes it possible to measure the authority of formal and informal leaders to regroup people in teams to reduce tension in the team arising from the mutual hostility of some members of the group. The sociometric method is carried out by the group method, its implementation does not require large time costs (up to 15 minutes). It is useful in applied research, especially in work on improving relations in the team. But it is not a radical way to solve intra-group problems, the causes of which should be sought not in the sympathies and antipathies of group members, but in deeper foundations of the functioning of the team.

The method allows social educators to identify the real place of a person in a group by its business qualities, popularity, interpersonal relationships, etc.

The sociometric procedure can be carried out in two forms. The first option is a non-parametric procedure. In this case, the subject is invited to answer the question of the sociometric card without limiting the number of choices of the subject. If the group is calculated, say, 12 people, in this case, each of the respondents can choose 11 people (except himself). Thus, the theoretically possible number of choices made by each member of the group towards the other members of the group in this example will be (N-1), where N is the number of members of the group. Similarly, and theoretically, the possible number of elections received by the subject in the group will be equal to (N-1). The specified value (N-1) of the obtained choices is the main quantitative constant of sociometric measurements. In a non-parametric procedure, this theoretical constant is the same both for the individual making the choice and for any individual who has become the object of choice. The advantage of this version of the procedure is that it makes it possible to identify the so-called emotional expansiveness of each member of the group, to make a cut of the variety of interpersonal connections in the group structure. However, with an increase in the size of the group to 12-16 people, these connections become so many that without the use of computer technology it becomes very difficult to analyze them.

Another approach to optimize the structure of the studied team is based on the method of group personality assessment. This method is based on the phenomenon of group ideas about each as a result of mutual knowledge in the process of joint activity, communication and makes it possible to obtain personality characteristics through mutual evaluation. With its help, the corresponding qualities of a person are evaluated according to the submitted list using techniques: direct evaluation; ranking of qualities; pairwise comparison and others. The content of the assessed qualities is determined by the objectives of the study, and their number may vary depending on the purpose of the study and, on average, ranges from 20 to 150.

The advantage of this method is that the researcher himself initiates the phenomena that interest him, and does not wait for their appearance. The experiment is realized as an interaction organized by the researcher between the study or group of study subjects and the experimental situation in order to establish the patterns of this interaction and the variables on which it depends. Psychological experiment can be natural (based on controlling the behavior of the subjects in natural conditions, that is, in special experimental conditions that do not violate the usual course of events) and laboratory (research in artificial conditions, using measuring equipment, instruments and other experimental material).

After analyzing the data relating to socio-psychological management methods for social educators, we can conclude that the presented management methods include the regulation of internal group and group relations, the management of individual phenomena and parties to a separate life in which the formation of social consciousness, psychological interaction in the team, conscientious attitude to work. Consequently, there is an acute problem in the need to understand and use socio-psychological methods at all levels and stages of management. Knowledge in this area will contribute to the formation of a highly organized team, where each individual participant will be able to realize their capabilities and potential at the highest level, thus increasing the effectiveness of the team [12, 18].

In the scientific work I. Georgiou, R. Concer and A. Mrvar compatibility and diversity of different, interrelated, structural configurations of groups aimed at achieving a certain goal that requires joint activities are investigated and analyzed. The consistency of such a context is solved by the necessary approach that corresponds to sociometric principles and methodological and measurement standards [1].

In the study [5], based on the sociometric analysis of social networks, the problem of forming sociotechnical teams from a group of people with different skills and a social network that fixes mutual kinship between them is considered. the problem is finding a set of pairwise disconnected commands as harmonious as possible with a minimum given number of people per skill team. aToshihiro Yoshizumi T., Sumida T., Shiono Y., Namekawa M., Tsuchida K. in their work, they evaluated a system for analyzing human relationships using the theory of fuzzy theories. The proposed technique allows to expand the possibilities of using the Moreno sociometric analysis method [16]. In work [17] the problem of formation of several teams from among experts so that the efficiency of distribution was maximized is considered.

Scientists Jiamou Liu, Ziheng Wei investigate the social dynamics of cohesion through the network topology of interpersonal connections. Their work proposes a game model of cohesion, which not only relies on the social network, but also reflects the social needs of people [4].

In the study [7], the author's method of remote analysis was proposed to select capable teams, assess their cohesion and determine the optimal leader based on the use of the Jung basis. This technique makes it possible to determine the mentality of a person with a high probability and evaluate its possibility of application for performing a certain type of work. The advantage of the proposed technique is its relative simplicity and availability in use.

The article [13] considers the actual important scientific and applied problem of validation of socio-demographic characteristics of participants in the virtual community through computer-linguistic analysis of information content. A systematic analysis of the information content of web participants and the study of the specifics of web communication of the significance of each socio-demographic characteristic is carried out by validating the content of the virtual community for further modeling of socio-demographic profiles of web participants.

K. Pietrak in his work highlighted the foundations of the theory of socionics, including the justification of the model of information processing by the human psyche of Aushra Augustinavichute, as well as the philosophical thought underlying the concept of elements of information metabolism. The

main purpose of the work is to present socionics to the English-speaking community in order to better use its explanatory potential in the sphere of interpersonal communication [2].

The article [6] presents a methodology for building joint teams that can be used in educational and software companies based on alternative methodologies, in particular the Myers-Briggs type indicator (MBTI) and the Jung-Keirsi system. New methods, new elements relating to typologies based on Eastern and Western cultures are analyzed.

Nowadays, in practice, the socionic method is often used to solve problems of constructing and optimizing commands [9, 10]. The method is based on determining the sociotype of each individual using 4 dichotomous signs of Jung: extraversion-introversion, logic-ethics, sensory-intuition, rationality-irrationality. Having consistently defined each of the four pairs of dichotomous features, we come to the definition of one of the 16 socionic types.

The advantage of using the socionic method is the possibility of modeling intertype relationships, personal selection of teams taking into account the maximum psychological compatibility, the possibility of determining the optimal leader (leader) of the team, determining the optimal candidate for filling a vacant position in the team.

There are three main methods for determining the sociotype: visual, verbal and testing. All of them are aimed at determining the dominant dichotomous feature of each of the four pairs. The best results in practice are given by the simultaneous use of all three methods. However, it should be noted that the use of the first two methods requires the researcher considerable knowledge and experience. Therefore, in practice, the simplest is the application of testing. The object of the study at the same time consistently answers groups of questions combined into four blocks - according to dichotomous signs. According to the vast majority of answers, dominant psychological signs are determined and the socionic type is determined. The advantage of using this method is the possibility of using computer processing of results.

Analysis of existing tools shows that there are a number of software systems on the market that are designed to automate the solution of such problems, in particular [3, 11]. First, consider a similar concept web platform - Testorium.net [3]. Testorium is a free testing system designed for teachers (teachers) and students (students) of any educational institution. The main purpose of creating this system is to facilitate the work of the teacher and provide students with the opportunity to independently test their knowledge.

Any teacher with the help of such a system can independently create tests in his subject, and the student can independently test his knowledge on these tests, which are open to all or proposed by the teacher. Thanks to Testorium, the teacher does not need to check whether the tests have been completed, as the system itself will do this immediately after the test is completed. Also, the teacher on the monitor of his computer can see the test results and control how many tasks each student completed, what questions he answered, whether he answered correctly and how many points he received for this. The system implements the ability to exchange tests, that is, teachers can allow other teachers (teachers) who are registered in the Testorium system to use their tests. Thus, information is exchanged, and time is saved on creating tests.

Next, consider the Psytests.org website [11]. This site includes numerous psychological tests that can be taken online, on any device, free of charge and anonymously. The advantages of this software product are that: all tests are absolutely free, the results are provided immediately and in full; for each result, a short link is formed, which can be saved in bookmarks or shared in social networks; results and interpretations are presented in a visual, understandable form; attached are the tables and graphs provided for by the method; professional tests used in psychodiagnostic practice and self-testing techniques proposed by competent specialists are offered; the test method is reproduced as accurately as possible from reliably printed sources; all available options are implemented; you can view the progress of calculations, normative data, formulas and tables, indicate printed sources; the site can be safely used for educational purposes, and with some caution - in professional.

3. Development of the structure of information technology to optimize the structure of the team using methods of practical psychology

The work developed the structure of information technology to optimize the structure of the team using practical psychology, which includes four main components, namely: information about the members of the team; methods and models of IT optimization of the team structure using practical psychology; software tools for IT optimization of the team structure using practical psychology; data (recommendations) on the optimal variant of the study team.

In general, such information technology can be represented mathematically using the following tuple:

$$\mathrm{IT}_{\text{optimal team}} =< \mathrm{I}, \mathrm{M}, \mathrm{P}, R >, \quad (1)$$

where I is the set of team members with characteristics; M - a set of methods and models of practical psychology; P - software tools for IT optimization of the team structure using practical psychology; R - recommendations.

Graphically, the developed structure of IT optimization of the team structure using the methods of practical psychology is shown in Fig. 1.

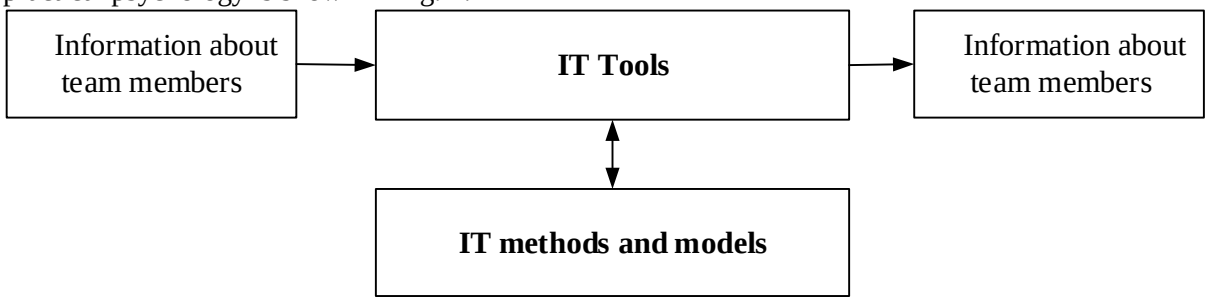


Figure 1: Structure of IT optimization of team structure using methods of practical psychology

In the process of solving the optimization problem, the method of random search was used [19]. The developed structure is based on a modular principle, which allows you to quickly and efficiently upgrade the developed system.

4. Methods and models of IT optimization of the team structure using methods of practical psychology

In this article, an attempt is made to answer the question of how to assess the conflict of the team and how to use the obtained assessment to improve the effectiveness of its work. The work is based on the axioms of socionics about the mutually unambiguous correspondence of the individual and the type of information metabolism inherent in him (TIM), as well as about the immutability of the individual's TIM throughout life. When building the model, the table of intertype relations (Table 1) and the corresponding groups of intertype distances were used, which are reflected in the matrix of intertype distances in numerical format (Table 2).

Table 1

Table of intertype relationships

me / him	ILE	SEI	ESE	LII	EIE	LSI	SLE	IEI	SEE	ILI	LIE	ESI	LSE	EII	IEE	SLI
ILE	I	Ad	A	M	O	C	B	Mr	Se	Re	Q	Ct	S	UC	Rl	Sd
SEI	Ad	I	M	A	C	O	Mr	B	Re	Se	Ct	Q	UC	S	Sd	Rl
ESE	A	M	I	Ad	R	Sd	S	UC	Q	C	Se	Re	B	Mr	O	C
LII	M	A	Ad	I	Sd	R	UC	S	Ct	Q	Re	Se	Mr	B	C	O
EIE	S	UC	Re	Sd	Ad	B	A	M	O	C	B	Mr	Se	Re	Q	Ct

LSI	UC	S	Sd	Re	B	I	M	A	C	O	M	B	Re	Se	Ct	Q
SLE	B	Mr	O	C	A	M	I	Ad	Re	Sd	S	UC	Q	Ct	Se	Re
IEI	Mr	B	C	O	M	A	Ad	I	Sd	Re	UC	S	Ct	Q	Re	Se
SEE	Se	Re	Q	Ct	S	UC	Re	Sd	Ad	B	A	M	O	C	B	Mr
ILI	Re	Se	Ct	Q	UC	S	Sd	Re	Ad	I	M	A	C	O	Mr	B
LIE	Q	Ct	Se	Re	B	Mr	O	C	A	M	I	Ad	Re	Sd	S	UC
ESI	Ct	Q	Re	Se	Mr	B	C	O	M	A	Ad	I	Sd	Re	UC	S
LSE	O	C	B	Mr	Se	Re	Q	Ct	S	UC	Re	Sd	I	Ad	A	M
EII	C	O	Mr	B	Re	Se	Ct	Q	UC	S	Sd	Re	Ad	I	M	A
IEE	Re	Sd	S	UC	Q	Ct	Se	Re	B	Mr	O	C	A	M	I	Ad
SLI	Sd	Re	UC	S	Ct	Q	Re	Se	Mr	B	C	O	M	A	Ad	I

In Table 1:

I - a distance: Tt - identical, Du - dual, Ak - activation, Vc - intra-quadral competition;

II - a distance: Dl - business, Mr - marginal, Nw - social order, Rw - Revision;

III - I distance: Rd - related, Sun - semi-dual, Sv - social performance, Pr - submissive;

IV - a distance: Pp - the complete opposite, Ct - quasi-identical, Se - superego, Kf - conflict.

The above table describes in abbreviated form all intertype relations which exist according to socionic theory.

Table 2

Intertype relations. Psychological distance

	ILE	SEI	ESE	LII	EIE	LSI	SLE	IEI	SEE	ILI	LIE	ESI	LSE	EII	IEE	SLI
ILE	1	1	1	1	2	2	2	2	4	4	4	4	3	3	3	3
SEI	1	1	1	1	2	2	2	2	4	4	4	4	3	3	3	3
ESE	1	1	1	1	3	3	3	3	4	4	4	4	2	2	2	2
LII	1	1	1	1	3	3	3	3	4	4	4	4	2	2	2	2
EIE	3	3	3	3	1	1	1	1	2	2	2	2	4	4	4	4
LSI	3	3	3	3	1	1	1	1	2	2	2	2	4	4	4	4
SLE	2	2	2	2	1	1	1	1	3	3	3	3	4	4	4	4
IEI	2	2	2	2	1	1	1	1	3	3	3	3	4	4	4	4
SEE	4	4	4	4	3	3	3	3	1	1	1	1	2	2	2	2
ILI	4	4	4	4	3	3	3	3	1	1	1	1	2	2	2	2
LIE	4	4	4	4	2	2	2	2	1	1	1	1	3	3	3	3
ESI	4	4	4	4	2	2	2	2	1	1	1	1	3	3	3	3
LSE	2	2	2	2	4	4	4	4	3	3	3	3	1	1	1	1
EII	2	2	2	2	4	4	4	4	3	3	3	3	1	1	1	1
IEE	3	3	3	3	4	4	4	4	2	2	2	2	1	1	1	1
SLI	3	3	3	3	4	4	4	4	2	2	2	2	1	1	1	1

Table 2 translates intertype relationships into digital value, depending on their comfort, where 1 is the most favorable, and 4 is the most unfavorable. Since the above matrix does not have the property of symmetry, it can be concluded that not only the absolute value, but also the direction of the connection is important for describing the distance. This means that the analysis should consider ordered pairs of individuals.

Sociotype, or TIM (type of information metabolism) is the central concept of socionics, denoting the innate and unchanging structure of the psyche throughout life, which is decisive in interaction. TIM is formed by a combination of four main dichotomous features: sensory - intuitive; logical - ethical and sometimes rational - irrational; extrovert - introvert. Since the defining feature for a sociotype is the first trait that cannot be combined with its antipode, there are 16 sociotypes in total, which we will treat as 16 socionic functions. In the case when the type is irrational, intuitiveness or sensory is in the first place, if rational - logic or ethics.

Let some ordered set of dichotomous features be defined For convenience, we will depict the socionic function in the form of some eight-bit cipher, where each digit will be responsible for a certain dichotomous feature in its extrovert and introvert representation:

Table 2

Intertype relations. Psychological distance

TIM	Designation	Weight cipher
ESE		4 0 0 3 2 0 0 1
SEI		3 0 0 4 1 0 0 2
ILE		0 1 0 3 2 0 4 0
LII		0 2 1 0 0 4 3 0
EIE		4 0 0 1 2 0 0 3
IEI		3 0 0 2 1 0 0 4
SLE		0 1 4 0 0 3 2 0
LSI		0 2 3 0 0 4 1 0
LIE		2 0 0 1 4 0 0 3
ILI		1 0 0 2 3 0 0 4
SEE		0 3 4 0 0 1 2 0
ESI		0 4 3 0 0 2 1 0
LSE		2 0 0 3 4 0 0 1
SLI		1 0 0 4 3 0 0 2
IEE		0 3 2 0 0 1 4 0
EII		0 4 1 0 0 2 3 0

Numbers from 1 to 4 indicate the measurement of mental mental functions in model "A." They are decisive in diagnosing the integral type. Greeting functions by default are taken as 0, since they are personal, not social.

Thus, the value of the socionic function uniquely reflects the TIM of the individual. If the collective consists of several individuals, it is possible to find total value of socionic functions of each its member and to treat the received result as value of socionic function of collective (socionic code of collective). Similarly, the maximum value of a certain category will determine the sociotype of the team.

In the case of an analysis of effective appointment to a vacant place, it is recommended to prefer an appointment that would not change the sociotype of the team.

5. Development of IT tools to optimize the structure of the team using the methods of practical psychology

5.1. Features of algorithmic implementation of IT tools to optimize the structure of the team using practical psychology

The implementation of the system involves the development of a number of basic algorithms that are the core of IT optimization of the team structure using practical psychology.

Consider the flow charts that describe the functioning of the system, which allows you to show in detail the features of the developed IT tools.

In particular, a fragment of the algorithm for filling the text by the user includes the following steps:

Step 1. Input to the menu form.

Step 2. Checking the correctness of the entered data. If the data is entered incorrectly, then go to step 1 and issue a response message.

Step 3. The recorded data is transmitted for operation to the system.

Figure 2 shows the sequence of actions of the system when obtaining user data, after passing the test, their analysis, determination of the sociotype and review of characteristics, and comparison of the relationships between the sociotypes of workers.

Figure 3 shows a flowchart for the case when the sociotype of the team members is known, and then using the table, determining the cipher of each individual, filling the data into the form, checking them, and determining the sociotype of the team.

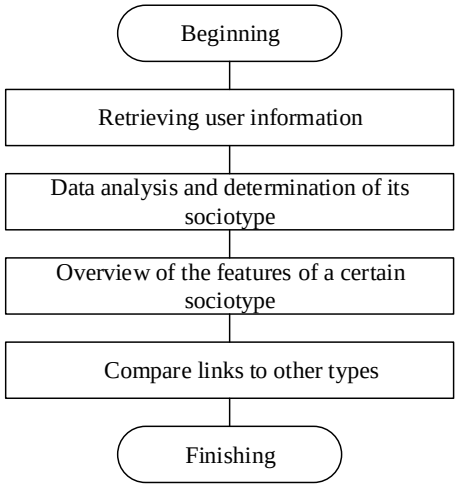


Figure 2: Algorithm fragment for sociotype determination and comparison operation

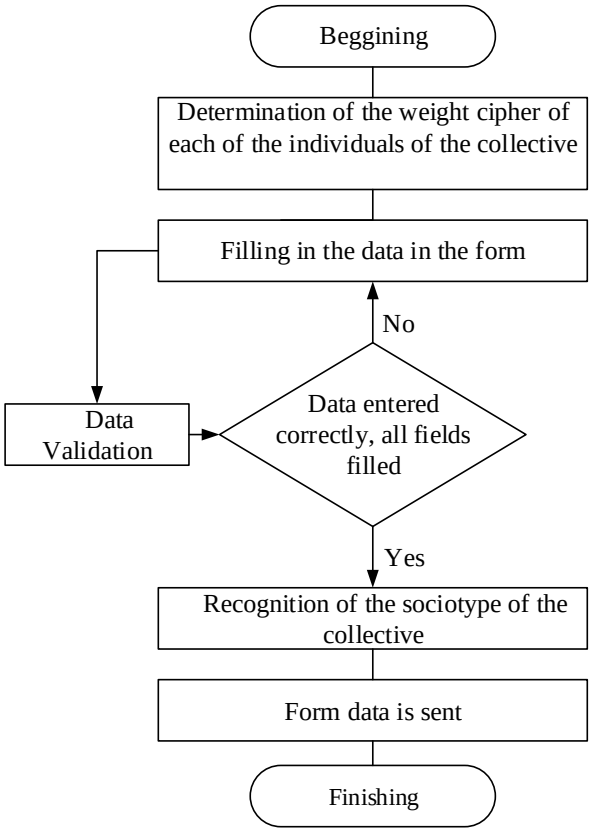


Figure 3: Flow diagram of the algorithm for determining the sociotype of the team

Figure 4 shows the sequence of actions of the system, when the sociotype of team members and the candidate is already known for the case, and then using the table, determining the cipher of each individual, filling the data into the form, checking them, and determining the sociotype of the team. As a result, the data is sent for processing. If, after all the above actions, the sociotype of the team has not changed, then the candidate is considered good for the team. Otherwise, he is a bad candidate.

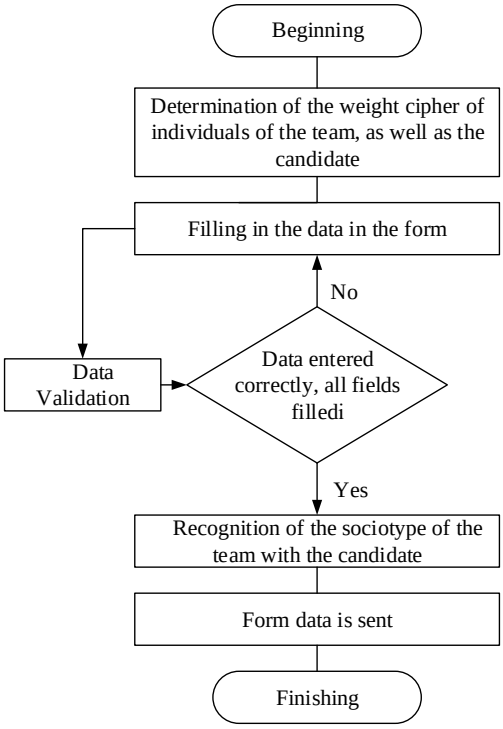


Figure 4: Flow diagram of the algorithm for selecting a candidate for the team of employees

5.2. Data flow chart and precedent diagram

In the process of developing the system, a diagram was created that allows you to show the work with data streams in the system (Fig. 5).

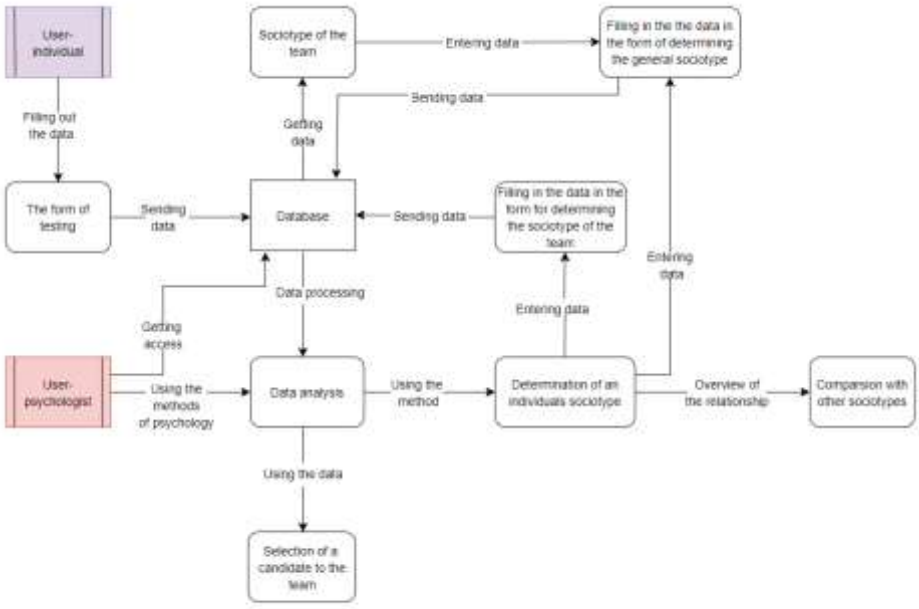


Figure 5: Developed data flow diagram

The developed UML chart of precedents is a tool for modeling system dynamic aspects that play an important role in modeling behavior, class, system and subsystems. Each such diagram has actors, precedents and relations between them.

Charts of precedents are supplemented with business logic and detailed specifications of precedents, as source information, are successfully used by participants in the development of the project in all its phases (origin, design, programming, testing, documentation).

Fig. 6 shows a diagram of precedents for the developed IT tools for optimizing the team structure using practical psychology methods.

As a result of creating a project, we get a system that consists of two main parts. The first part is responsible for creating the user interface. Other, responsible for the functions that are available in the system.

In the process of implementing the platform, the following development technologies were used: HTML hypertext markup language; CSS page style language Javascript programming language; Tilda tool.

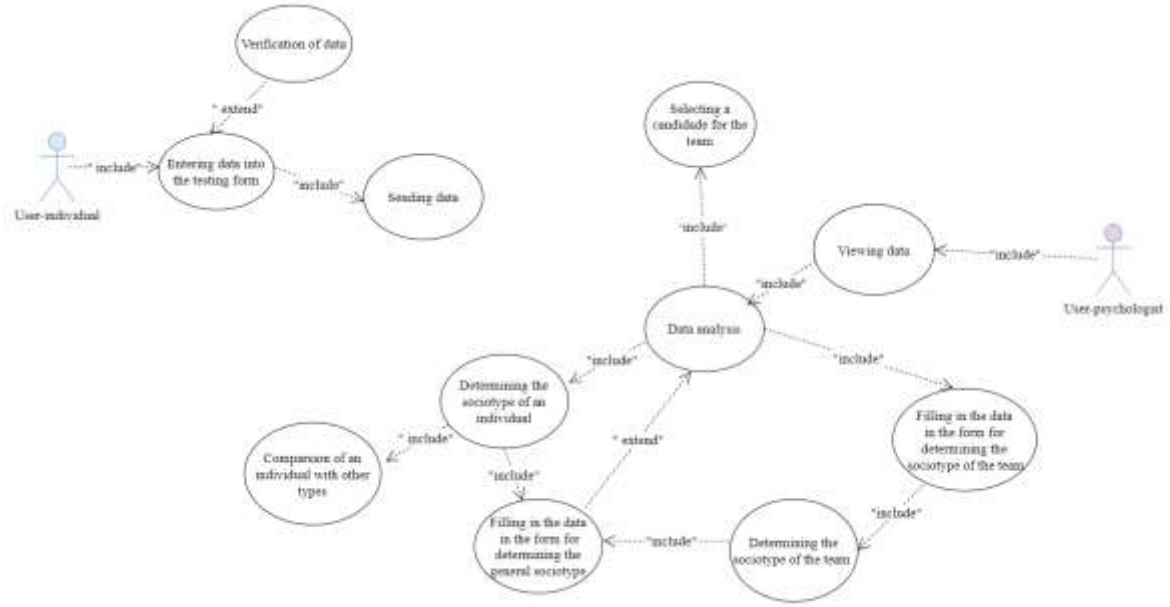


Figure 6: Precedent Chart

5.3. Development and description of system software features

The part of the system that is responsible for filling in, linking and receiving data will use the Fetch API application programming interface, used in combination with the JavaScript programming language, as one of the tools to help with development.

Figure 7 shows a class diagram that shows the structure of the system: methods, data types, classes and relationships between them.

A system for optimizing the structure of the team by methods of practical psychology in the form of a web platform has been developed. The system includes the following main system modules: the module responsible for the interface; A module that is responsible for entering, checking, and referencing study data module for analysis of processed data; module for data acquisition and storage.

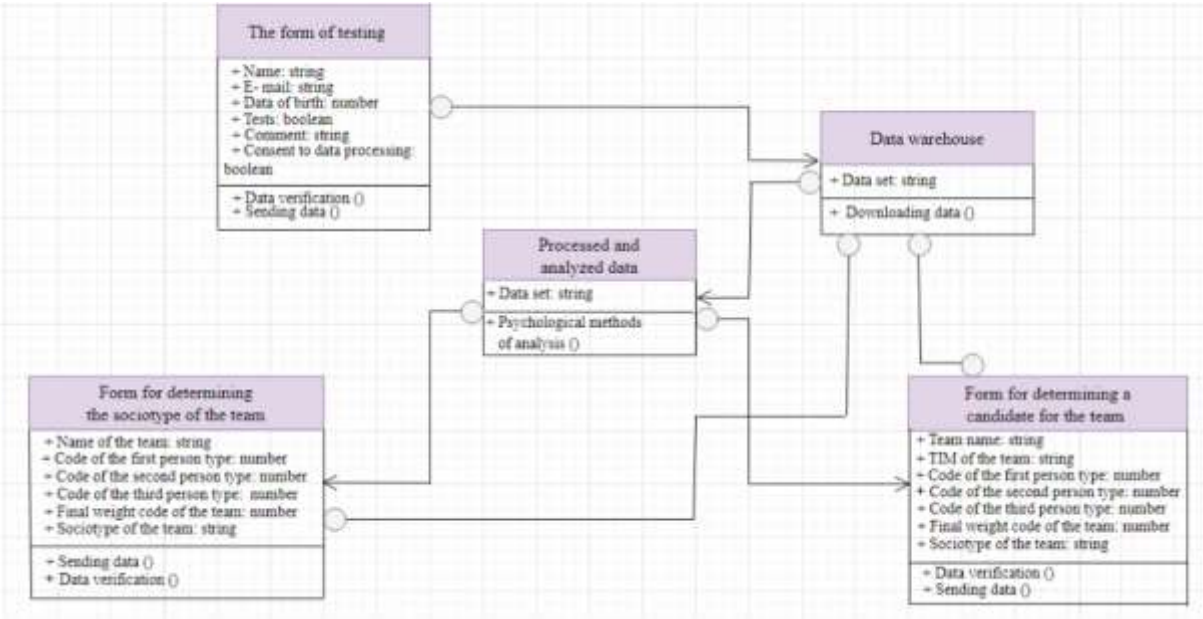


Figure 7: Class Diagram

The basis of the module, which is designed to create the system interface, includes: creation of navigation elements, buttons, tables, figures, etc., their design and placement, for the convenience of using the system.

At the heart of the module, which is designed for entering, checking, and linking data to studies, forms are included for the ability to fill in data that should not contain empty fields, because the system checks this and does not allow data to be referenced for further work with them.

The module, which is designed to analyze the processed data, is based on the analysis of the data obtained, thanks to which the sociotype of the individual, team and so on is determined. Thanks to this, we get the result of which we achieve.

The basis of the module, which is designed to obtain and store data, is a data warehouse, where the data goes after the link, and where they come from for analysis, processing, and where they are always stored.

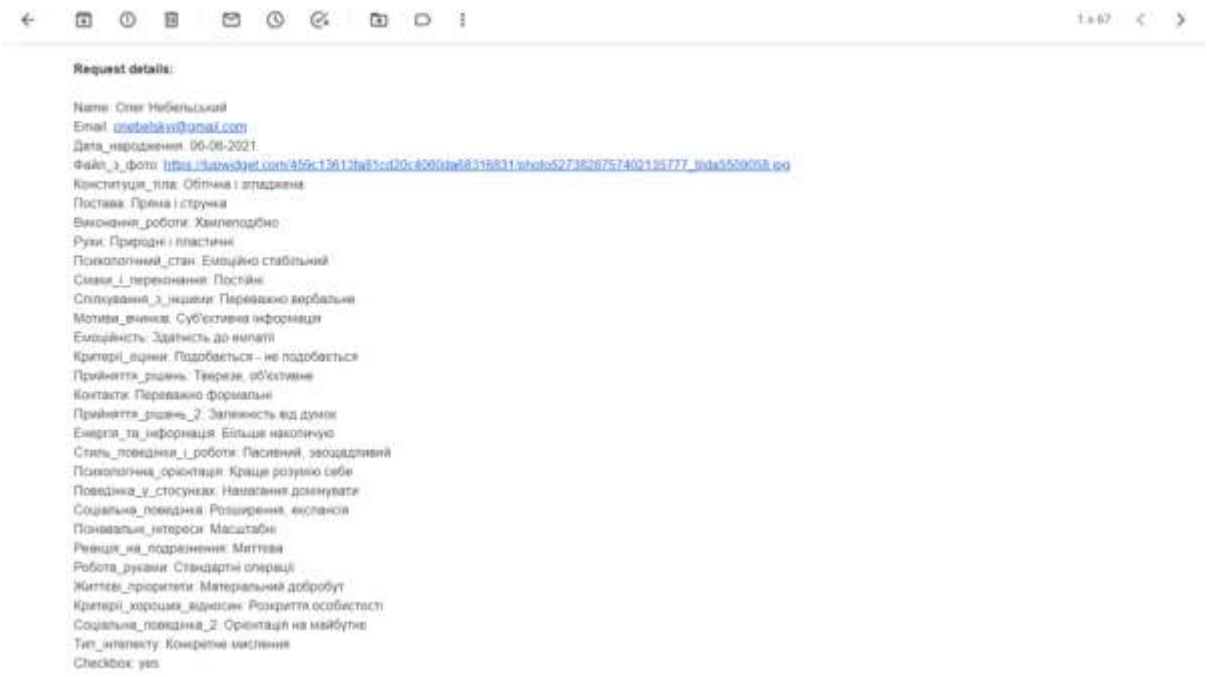
6. Results obtained

6.1. Description of experiments performed

First, let's test the test function, which is the main function on our platform, and see if we get the result we expect:

1. We launch our web platform.
2. On the start page, we read a brief description of our system, and click on the "Start" button.
3. We read the description on the page in which we have the test, and begin the process of filling the data with the first page into the form.
4. We check whether the "Photo Upload" function works.
5. Specifically, do not fill in at least one of the fields of the first page, and click the "Forward" button to go to the next to check whether the "Input verification" function will work.
6. Fill in all remaining test data.
7. We send the form.
8. We check whether the results came to the post office.

Figure 8 shows whether the test results came to the mail.



Request details:

Name: Олег Небельський
Email: onebelskyi@gmail.com
Дата_народження: 06-06-2021
Файл_з_фото: https://uploadkjet.com/4/56c13613ba81cd20c4060da6831f6831/photo5273828757402135777_lida5508058.jpg
Конституція_тіла: Обтічна і атлетична
Постава: Пряма і стрункa
Виконання_роботи: Хаотеподібно
Руки: Природні і пластичні
Психологічний_стан: Емоційно стабільний
Смаки_і_переконання: Постійні
Спілкування_з_іншими: Переважно вербальне
Мотиви_вчинків: Суб'єктивна інформація
Емоційність: Здатність до емпатії
Критерії_оцінки: Подобається – не подобається
Прийняття_рішень: Тверезе, об'єктивне
Контакти: Переважно формальні
Прийняття_рішень_2: Залежність від думок
Енергія_та_інформація: Більше накопичую
Стиль_поведінки_і_роботи: Пасивний, зволікливий
Психологічна_орієнтація: Краще розумію себе
Поведінка_у_стосунках: Намагання домінувати
Соціальна_поведінка: Розширення, експансія
Пізнавальні_інтереси: Масштабні
Реакція_на_подразнення: Миттєва
Робота_руками: Стандартні операції
Життєві_пріоритети: Матеріальний добробут
Критерії_хороших_відносин: Розкриття особистості
Соціальна_поведінка_2: Орієнтація на майбутнє
Тип_інтелекту: Конкретне мислення
Checkbox: yes

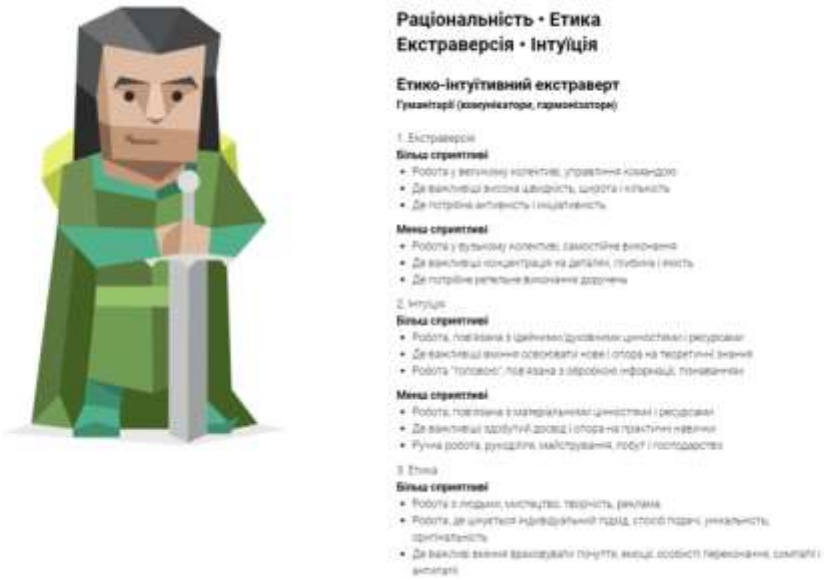
Figure 8: Test results

Conclusion: all of the above functions do their job well, and work as we expected.

Next, we will check the section "Socionic types," in which we can view the signs of socionic types of people who have been tested, and their relationships with other types:

1. Using navigation, we go to the section "Socionic types."
2. Check whether the function of opening a detailed description of the socionic type works when you click on the drawing that corresponds to the desired one.

In Figure 9 shows a check of the deployment function of the detailed description of the sociotype.



Раціональність • Етика
Екстраверсія • Інтуїція

Етико-інтуїтивний екстраверт
Гуманітарії (комунікатори, гармонізатори)

1. Екстраверсія
Більш сприятливі
- Робота у великому колективі, управління командою
- Де важливі висока швидкість, широта і кількість
- Де потрібна активність і ініціативність

Менш сприятливі
- Робота у вузькому колективі, самостійне виконання
- Де важливі концентрація на деталях, глибина і якість
- Де потрібне ретельне виконання доручень

2. Інтуїція
Більш сприятливі
- Робота, пов'язана з ідейними/духовними цінностями і ресурсами
- Де важливі вміння освоювати нове і опора на теоретичні знання
- Робота "головою", пов'язана з обробкою інформації, пізнанням

Менш сприятливі
- Робота, пов'язана з матеріальними цінностями і ресурсами
- Де важливі здобутий досвід і опора на практичні навички
- Ручна робота, рукоділля, майстрування, побут і господарство

3. Етика
Більш сприятливі
- Робота з людьми, мистецтво, творчість, реклама
- Робота, де цінується індивідуальний підхід, спосіб подачі, унікальність, оригінальність
- Де важливі вміння враховувати почуття, емоції, особисті переконання, симпатії і антипатії

Figure 9: Detailed description of the sociotype

Conclusion: function of deployment of detailed description of socionic type works well.

Last, we will check the section "Sociotype of collective," in which we by means of that we know types of people, and tables of ciphers corresponding to them, can learn their general socionic type:

1. Using navigation, go to the section "Sociotype of the team".

2. We copy the weight ciphers of the people who make up the team and paste them into the corresponding fields.
3. Press the "Submit" button to make sure that we still have the "Input checks" function running, since not all fields are filled.
4. Fill in the remaining fields.
5. We send the data.

In Figure 10 shows the validation of the Input Validation feature.

Figure 10: Check field entry

In Figure 11 shows the check of the function of receiving results in the mail.

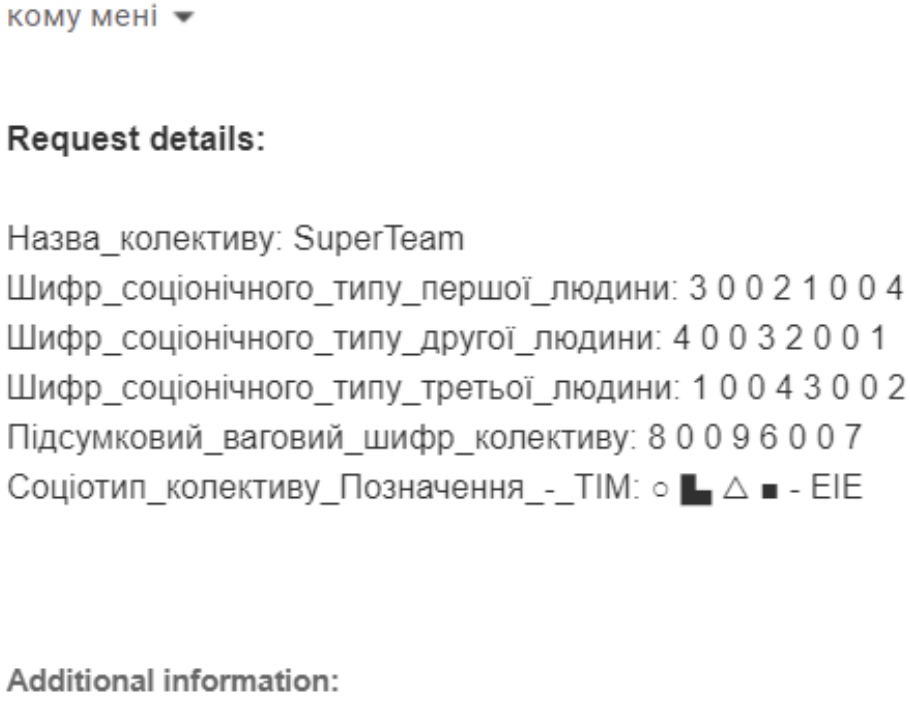


Figure 11: Results of team sociotype determination

Conclusion: the functions of checking data in the form, as well as sending this data in the section "Sociotype of the team," work as they should.

The section "Candidate for a place in the team" was revised and tested, but was not described, as it is very similar to the section "Sociotype of the team" in its functionality.

6.2. Description of experiments performed

As a result of testing and experiments, the developed system was tested and showed that it is able to perform all the functions that we want from it. We did not have any errors, and the system itself showed stable and uninterrupted operation. With the help of testing, we were able to understand that you can start working on this platform. All functions of the system perform the work we need, and the system itself is convenient and easy to use, so everyone who wants to use it can easily master the work in it.

The work further developed models and methods for optimizing the structure of the team using the methods of practical psychology. The structure, basic algorithms and IT software were developed.

The developed IT system has been tested and approved on real teams. The system works properly and correctly, which is confirmed by the results obtained.

The software is developed and tested in Ukrainian. In the future, it is planned to develop an English version of the software.

7. Conclusions

The use of IT tools in combination with methods of practical psychology provides significant competitive advantages. This significantly speeds up the processing of the obtained results, makes it possible to work with significant amounts of information and choose among them the most suitable for practical application. With the help of IT, you can simulate and select the personal composition of production teams capable of performing tasks of any complexity in all areas of human life. Minimizing the conflict in the relationships in the teams selected in this way is a significant advantage, as it can significantly reduce the unproductive use of working time. Efficiency and interaction in the teams selected in this way will be maximum.

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