

New approaches in practical tasks of profession activity estimation

In the article the practical aspects of professional activity analytical estimation information system using are presented. Also absolutely new theoretical approaches are considered in the tasks of assessing professional activity, realized using the theory of graphs and an apparatus of fuzzy sets

Profession activity estimation

The main theoretical principles of the analytical evaluation of professional activity were previously considered in detail in the works [1-4]. The central idea of the methodology developed by the author consists in describing the work (profession) by a finite number of factors that unambiguously characterize it from the point of view of the specific characteristics of its functional areas. At the same time, these factors are universal for any type of professional activity, thus allowing the use of methodology for assessing a wide range of professions of any industry.

In developing the methodology, the author encountered a number of problems in describing certain factors of the profession, which were practically impossible to describe with linear scales. It was suggested introducing linguistic variables using the apparatus of the theory of fuzzy sets [5,6].

Also in works [7], in order to increase the accuracy of estimating the weights of the operations that make up the activity, a method of graphical analysis of activities was developed, assuming its representation in the form of a graph. The diagram of the calculation part of the information system is presented in (Fig. 1), it includes three main blocks: a block for graphical representation of the activity model, a block for representing operations in the form of linguistic variables, and directly a block of calculations.

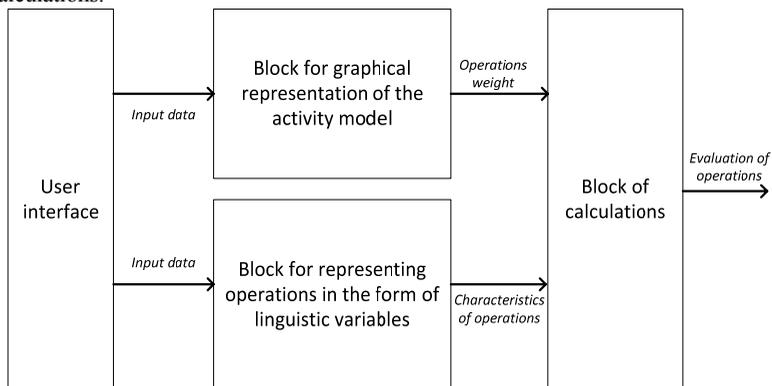


Fig. 1. Algorithmic part of the information system

Practical implementation of the information system of analytical assessment of professional activity is considered in the works [8]. The expert's work involves the implementation of an algorithm to enter data that describes certain factors in the profession (Fig. 2).

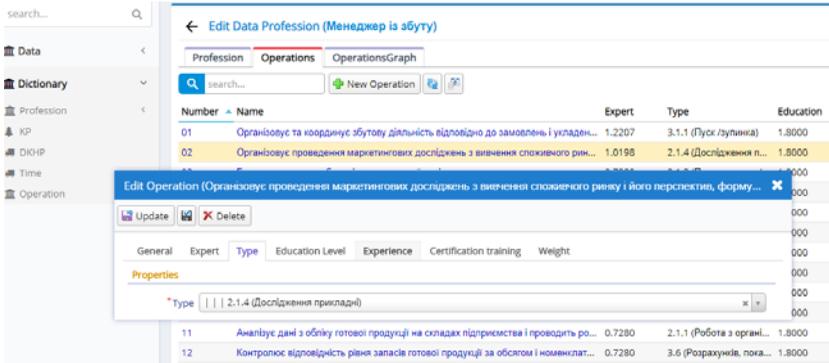


Fig. 2. Analysis and description of the model factors

The block of the graphical representation of the activity allows us to represent the model in the form of interrelated operations, which allows us to calculate the weighting coefficients of operations using the graph theory (Fig. 3).

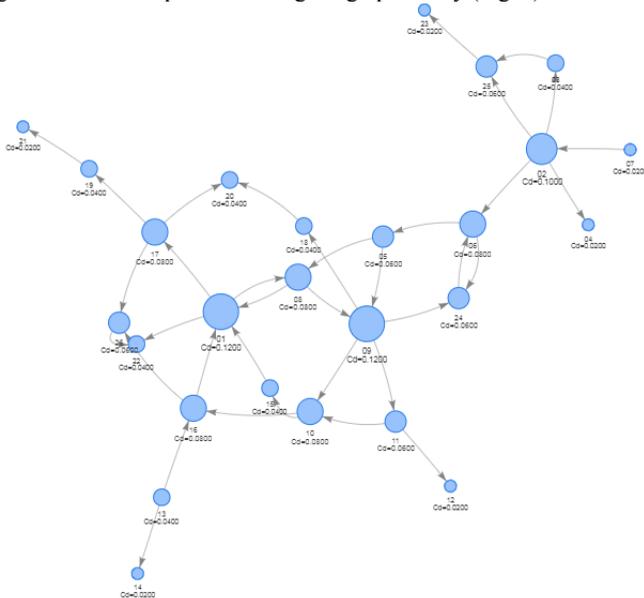


Fig. 3. Professional activity graph

The algorithmic part of the method ensures the automatic formation of adjacency and incidence matrices on the basis of the introduced operations and the connections between them. Variables of the model (operations characteristics) are presented in the form of fuzzy sets, using both membership functions and standardized functions of the distribution of characteristics. The transition from linguistic variables to their numerical representation is carried out using standardized methods of the theory of fuzzy sets, detailed in the work, the results of which calculations are estimated using the developed rule of choosing a solution option in the case of a wide cross section. The calculation unit implements the developed algorithms for quantitative estimation of operations (Fig. 4).

Name	Expert	Education	Experience	Cert.training	Weight Basic
Організує та координує збутову діяльність відповідно до заявок і умов...	1.2207	1.8000	0.4000	0.5270	3.3287
Організує проведення маркетингових досліджень з вивчення споживчого ринку...	1.0198	1.8000	0.4000	0.6872	2.9444
Бере участь у розробленні маркетингової політики	0.7280	1.8000	0.4000	0.6872	2.1019
Готує пропозиції і розробляє рекомендації щодо підвищення якості і поліпшен...	1.0198	1.8000	0.4000	0.5270	2.7810
Бере участь у підготовці проєктів перспективних і річних планів реалізації прод...	0.7280	1.8000	0.4000	0.5270	1.9853
Висвітлює пропозиції щодо коригування ціни на продукцію, що пропонується, обсяг...	1.0127	1.8000	0.4000	0.6872	2.9239
Бере участь у виграєх, торгах, аукціонах, біржах із реалізуванням і реалізаці...	0.4031	1.8000	0.4000	0.2357	0.9819
Організує зв'язки з діловими партнерами, забезпечує своєчасне виконання в...	0.8062	1.8000	0.4000	0.2357	1.9637
Виконує роботу з укладання договорів на постачання продукції і узгодження ум...	1.2207	1.8000	0.4000	0.5270	3.3287
Складає заявки, звадені відомості замовлень і асортиментні (номенклатурні) пл...	1.0770	1.8000	0.4000	0.5270	2.9371
Аналізує дані з обліку готової продукції на складах підприємства і проводить ро...	0.7280	1.8000	0.4000	0.5270	1.9853
Контролює відповідність рівня запасів готової продукції за обсягом і номенклат...	0.7280	1.8000	0.4000	0.3727	1.8730

Fig. 4. Evaluation of operation

The essence of the method of analytical evaluation of professional activity is to systematize a set of steps to enter data on the basis of formalized models within the developed database structures, knowledge bases, their processing with the help of developed methods and algorithms, and quantitative evaluation of professional activity in terms of complexity and mutual influence of elements of its technology using the developed mathematical model (Fig. 5).

Name	Evaluation Type	KP Code	Weight Basic	Weight 1	Weight 2	Weight
Прибиральник службових приміщень	Експертна оцінка	9132	0.6039	0.4619	0.5541	0.4665
Сервістар керівника	Експертна оцінка	4115	0.8616	0.8173	0.7115	0.6393
Бухгалтер (з дипломом спеціаліста)	Експертна оцінка	2411.2	2.3692	2.4608	2.0109	1.9372
Менеджер із збуту	Експертна оцінка	1475.1	2.4378	2.6419	2.0626	2.6419
Менеджер (управитель) з реклами	Експертна оцінка	1476.1	3.253	3.4838	2.7423	2.6875
Фахівець-аналітик з дослідження товарного ринку	Експертна оцінка	2419.2	2.5642	2.7592	2.1758	2.7592
Фахівець з методів розширення ринків збуту	Експертна оцінка	2419.2	2.7125	2.9099	2.3034	2.9099
Менеджер (управитель) із зв'язків з громадськістю	Експертна оцінка	1475.4	2.6532	2.873	2.192	3.1583
Директор комерційний	Експертна оцінка	1233	3.474	3.8117	3.1862	3.8117

Fig. 5. Evaluation of profession

An analytical evaluation of professional activity as an information technology is considered from the point of view of combining the technology of processing data and expert systems and is a set of methods, production processes and software and hardware integrated with the purpose of collecting, processing, storing, disseminating, displaying and using analytical evaluation information professional activity in order to make decisions on the complexity of the performed work (occupations).

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