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METHODICAL ISSUES OF IMPROVEMENT OF ALREADY EXISTING TRAINING PROGRAMS IN SPHERE OF CIVIL BUILDING ENERGY EFFICIENCY BASED ON THE UKRAINIAN TRAINING CENTERS

This article presents the results of the proposal describing the conducting collection, reviewing and analysis of the information on existing trainings and training institutions for building energy efficiency in Ukraine. Also this article contents preliminary results of identification of capacity needs of training institutions for building energy efficiency for potential improvement of already existing training.

There consider the following issues: 1) short description of the methodical approach and proposing an outline of the study; 2) the main education and training institutes for building energy efficiency in Ukraine; 3) training and qualification measures on energy efficiency that are offered in Ukraine; 4) identification of capacity needs of training institutions for building energy efficiency for potential improvement of already existing training.

Key words: *baseline; capacity needs; civil building energy efficiency; methodical approach; study; training market.*

Подано результати дослідження, що описує збирання та аналіз інформації про наявні тренінги та навчальні заклади для підвищення енергоефективності в Україні. Також у статті містяться попередні результати визначення потреб у потенціалі навчальних закладів для підвищення енергоефективності для потенційного покращання вже існуючого навчання.

Розглядаються такі питання: 1) короткий опис методичного підходу і пропозиція плану дослідження; 2) основні освітні та навчальні інститути для підвищення енергоефективності в Україні; 3) десять ключових критеріїв, що були визначені для оцінки й ранжування навчальних центрів. Кожен критерій належним чином описаний і має оцінну шкалу. Після нарахування

балів за кожен навчальний центр відповідно до визначених критеріїв можна було виділити навчальні центри; 4) навчання і кваліфікаційні заходи з енергоефективності, які пропонуються в Україні; 5) визначення потреб щодо потенціалу навчальних закладів з метою підвищення енергоефективності для потенційного покращання наявної підготовки.

Результати оцінювання основних навичок для тренерів показали, що в Україні є певні потреби в навчанні для вдосконалення таких основних навичок, як підготовка та проведення презентацій, спілкування з аудиторією та управління конфліктами.

Результати оцінювання основних компонентів навчальної діяльності, яких немає в навчальних центрах для ведення свого бізнесу у вигляді бізнес-процесу, показали, що в Україні є такі плани: навчання і проблеми організацій у галузі енергоефективності цивільних будівель; оцінка знань і навичок учасників; актуальність змісту навчальних програм; навчально-методичні матеріали для розв'язання реальних проблем учасників; підтримка учасників після тренінгу.

Ключові слова: *базовий рівень; потреби в потужності; енергоефективність цивільного будівництва; методичний підхід; навчання; ринок, що навчає.*

Представлены результаты исследования, описывающие проведение сбора, обзора и анализа информации о существующих тренинговых центрах и учебных заведениях по энергоэффективности зданий в Украине. Статья содержит предварительные результаты определения потребностей потенциального совершенствования для уже существующей подготовки в учебных заведениях в сфере повышения энергоэффективности зданий.

Рассмотрены следующие вопросы: 1) краткое описание методического подхода к предложенному исследованию; 2) основные учебные заведения и тренинговые центры по повышению энергоэффективности в Украине; 3) учебные и квалификационные мероприятия по энергоэффективности, которые предлагаются в Украине; 4) определение потребностей потенциального совершенствования для уже существующей подготовки в учебных заведениях в сфере повышения энергоэффективности зданий.

Ключевые слова: *базовый уровень; потенциальные потребности; энергоэффективность зданий; методический подход; обучение; рынок обучения.*

Problem formulation. Energy efficiency is key to ensuring a safe, reliable, affordable and sustainable energy system for the future. It is the one energy resource that every country possesses in abundance and is the quickest and least costly way of addressing energy security, environmental and economic challenges [1].

While energy efficiency policies are becoming a key part of the global energy market, there remains vast untapped potential to implement efficiency measures.

In modern conditions energy efficiency is one of the crucial factors for the energy strategy of Ukraine. It determines the effective functioning of the national economy and socio-economic development of Ukraine.

Energy efficiency – which can be defined as using less energy for the same or even increased output – is increasingly being recognized as one of the most important and cost-effective solutions to reduce greenhouse gas (GHG) emissions. Along with the benefits to the environment, successful energy efficiency projects also typically improve a company's overall efficiency, including by increasing productivity and competiveness.

According to DSTI/SU/SC(2014)14/FINAL one of the main barriers to adopting energy management measures and improving energy efficiency of companies is a limited knowledge of energy efficiency, as companies often have no readily available access to information about new and existing energy-saving methodologies technologies [2].

To get some knowledge about improving building energy efficiency it is needed to conduct different training in this sphere for relevant focal groups (managers, technical personnel).

Training is any planned activity to transfer or modify knowledge, skills, and attitudes through learning experiences. Personnel may require training for a variety of reasons, including the need to maintain levels of competence and respond to the demands of changing circumstances and new approaches and technologies. Training by itself cannot solve structural, organizational, or policy problems within an organization, although supportive supervision and the use of motivational strategies can help sustain performance improvement derived from training.

Training has been defined as "The systematic development of the knowledge, skills and attitudes required by an individual to perform adequately a given task or job" [3]. Training has also been defined in the Glossary of Training Terms (Manpower Services Commission, U.K.) as "a planned process to modify attitude, knowledge or skill behavior through learning experience to achieve effective performance in an activity or range of activities. Its purpose in the work situation is to develop the abilities of the individual and to satisfy current and future manpower needs of the organization". It clearly implies that the role of training is to improve the overall performance of the organization. The term "performance" is, therefore, interwoven with training.

In order to achieve its overall goal of performance improvement, training must lead to the enhancement of professional knowledge and skills both at individual and collective levels. It should also equip personnel to respond appropri-

ately to emerging challenges. Training should also bring about appropriate changes in attitudes and should strive for that unique synthesis between improvement of the individual's competencies and promotion of organizational objectives.

Purpose of the article. The target of this article is development methodical approach estimation of baseline of the training market for building energy efficiency and identification of capacity needs of training institutions for potential improvement of already existing training.

Main material.

Description of the methodical approach of baseline assessment of the training market for civil building energy efficiency

Background

First of all was prepared the list of organizations that can provide energy efficiency training services. For preparation of this list was used different sources of information:

• Internet catalogs;

• the list of educational institutions with valid licenses of the Ministry of Education and Science of Ukraine for conducting educational services and certification of vocational education in accordance with the list of professions approved by the Cabinet of Ministers of Ukraine;

• web-site of State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE);

• web-site of State inspection of educational institutions of Ukraine;

• official web-sites of institutes that can provide energy efficiency training services etc.

Before starting baseline assessment of the training market for civil building energy efficiency we identified such boundaries for our study:

1. In accordance with the new Law of Ukraine "On Higher Education" dated July 1, 2014, No. 1556-VII, the training of specialists with higher education is carried out according to the relevant educational or scientific programs at the following levels of higher education: initial level (short cycle) of higher education; first (bachelor's) level; second (master's) level; the third (educational-scientific / educational-creative) level; scientific level.

2. Educational activity in the field of higher education is carried out by higher educational establishments, scientific institutions (for preparation of specialists of the degree of doctor of philosophy) on the basis of licenses.

3. In accordance with the Law of Ukraine "On the Energy Efficiency of Buildings" of June 22, 2017, No. 2118-VIII, professional certification of persons who intend to carry out activities on certification of energy efficiency and inspection of engineering systems, shall be carried out by attestation commissions established by higher educational institutions or self-regulating organizations in sphere

of energy efficiency. Specialists need to undergo a relevant qualification and pass a qualifying examination, as a result of which he / she will be awarded a qualification certificate. The period of validity of the qualification certificate is five years.

4. Training (upgrading) of the personnel of the companies is stipulated by Article 201 of the Labor Code on organization of personnel training. Frequency of training of personnel at the courses of improvement of professional skill is established, as a rule, at least once in 5 years.

5. In Ukraine, in the field of qualified personnel training, the dual system of vocational education and training is beginning to be actively used today. Duality as a methodological characteristic of vocational education involves the coordinated interaction of the educational and industrial sphere with the training of skilled personnel of a certain profile within the framework of organizationally-excellent forms of training. The main task of introducing elements of the dual form of education is to eliminate the main drawbacks of traditional forms and methods of training future qualified workers, to bridge the gap between theory and practice, education and production, and to improve the quality of training qualified personnel, taking into account the requirements of employers in the framework of new organizationally-excellent forms of training.

Data collection and data gathering process

For collection and aggregation of general information of institutes that can provide energy efficiency training services was used different questionnaire and spreadsheets. The completed spreadsheets for aggregation of general information about universities and institutes that can provide energy efficiency training services included such information: name of the universities and institutes, link to offer on web-site, scope (trainees/year), general purpose of training scheme (scope; trainees/year; general purpose of training scheme; license for training or certification), training courses' name, duration of training courses, target group, potential/ interest for co-operation with other training institutions, challenges/gaps/demand: (regarding trainer pool, topics outreach, training results)).

In order to compile a list of training centers that provide education services in the field of energy efficiency, it were used various sources of information:

- Internet-directories [4–7];
- list of educational establishments with valid licenses of the Ministry of Education and Science of Ukraine for the implementation of educational services and certification of vocational education in accordance with the list of professions which are approved by the Cabinet of Ministers of Ukraine [8];
- web-site of State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE) [9];
- web-site of the State Inspection of Educational Institutions of Ukraine [10];

− official websites of companies and institutes that can provide energy efficiency improvement services, etc.

All training centers were state educational and training institutions, that have higher education programs (master or bachelor degree), and additionally they provide energy efficiency training services. Now the total number of training centers on building energy efficiency in Ukraine is 42 [9].

Ukraine has a sufficient number of training centres that conduct training for a short list of sub-sectors under consideration in the project. Among them: Training Centre for Energy Management (TCEM) of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", National Technical University "Kharkiv Polytechnic Institute", Odessa Regional Center for Energy Management of Odessa National Polytechnic University, Center of Excellence in Energy of Department of Electricity and Electromechanics Vinnitsa Polytechnic Institute, Lviv Polytechnic National University, Dnipro University of Technology, Association of Energy Auditors of Ukraine, AEE Ukraine and others.

On the next step for further evaluation and analysis of the activities of the training centres, the questionnaire for conducting of market analysis of existing trainings and the main education and training centers, institutes in energy efficiency sphere in Ukraine was sent to the heads of these centres.

We received back completed the questionnaire from 14 State educational and training institutions and organizations. The summarized information on existing trainings and the main education and training centers, institutes in energy efficiency sphere in Ukraine is aggregated. The summarized information allowed us to identify the readiness of the training centers for further improvement of their training programs.

The baseline assessment process of the training market for civil building energy efficiency

Taking into account the results of the questionnaires and interviews of different expert in EE sphere that were carried out on this stage of the study, 10 key criteria were identified for the assessment and ranking of training centers, namely:

1) Scope;
2) Number trainees per education year;
3) Frequency of courses, trainings;
4) Training centre has a certification or state license on education;
5) Target group of training;
6) Potential interest in cooperation with international training centres;
7) Own training rooms availability and the willingness to provide these auditoriums for conducting joint trainings with international organizations;
8) Possibility to involve the coaches of the centres with the appropriate level of education and work experience on the profile for conducting trainings;
9) Possibility to use appropriate presentation and demonstration equipment for trainings;

10) Possibility of conducting various forms of training sessions.

These criterion were achieved based on expert evaluation using approaches suggested in [10–12].

Each criterion is appropriately described and has a score scale for its evaluation as suggested in [13]. After having been awarded points for each training center according to certain criteria, it was possible to allocate TOP-5 of the best training centers. In addition, it should be noted that only state institutions have a license for advanced training of students, that is, after listening to the course students receive a certificate of state standard.

The description is given below for each of these criteria.

1) Scope – this criterion can determine which sectors of the economy are focused on training courses and training centers. It is suggested to evaluate the appropriate training center on the following scale (table 1).

Table 1

The scale for evaluation of the criteria "Scope"

Name of criteria	Description	Value
Scope	general course or course for residential sector or for non-industrial companies	0
	general course and special course for all types of industrial companies	1
	general course, special course for all types of industrial companies and specific course for short list sub-sectors companies	2

2) Number trainees per education year – this criterion allows you to estimate the number of students trained in the training center in a year (table 2).

Table 2

The scale for evaluation of the criteria "Number trainees"

Name of criteria	Description	Value
Number trainees	< 50	0
	from 50 to 500	1
	> 500	2

3) Frequency of courses, trainings – using this criterion, you can evaluate how often trainings are held in the center (table 3). Based on the information received from the centers, trainings can be conducted more than once a month, either once a month or in the case of a request from the company and provided that there is sufficient number of students for training.

Table 3

The scale for evaluation of the criteria "Frequency of courses, trainings"

Name of criteria	Description	Value
Frequency of trainings	depends on request	0
	once per month	1
	more than once per month	2

4) Training center has a certification or state license on education – this criterion shows the availability of a state license for conducting training, which allows students to receive state-certified certificates of training (table 4).

Table 4

The scale for evaluation of the criteria "Quality certification/state license"

Name of criteria	Description	Value
Quality certification/state license	No	0
	Yes	1

5) Target group of training – the assessment of this criterion shows the main groups of consumers of energy efficiency education services for the appropriate training center (table 5).

According to the survey were identified following target groups:

1. Top management (decision makers);
2. Management (chiefs of departments): Procurement department, HR department, Planning and Economic Department, Sales department, Accounting, Legal service;
3. Technical personnel: Chief power engineer department, Chief Mechanic Department, Design & Engineering Department, Department of Chief Technologist, Maintenance and operations department, Department of mechanization and automation, Department of Capital Construction, Department of Metrology.

Table 5

The scale for evaluation of the criteria "Target group"

Name of criteria	Description	Value
Target group	One possible type of target group shown upper	0
	Two possible types of target group shown upper	1
	All possible types of target group shown upper	2

6) Ability to develop new training programs and materials through its trainers – this criterion can be used to assess the capacity of staff trainers in a training centre to develop or improve training programs (table 6).

Table 6

The scale for evaluation of the criteria "New training programs"

Name of criteria	Description	Value
New training programs	no	0
	yes	1

7) Availability of full-time trainers with an appropriate level of education and practical work experience on the profile for conducting trainings – according to this criterion can assess the possibility to involve the full-time trainers of the centers with the appropriate level of education and work experience on the profile for conducting trainings (table 7).

Table 7

The scale for evaluation of the criteria "Qualification of trainers"

Name of criteria	Description	Value
Qualification of trainers	Higher education or lack of full-time trainers	0
	Higher education and master's degree at a minimum	1
	Higher education and work experience on the profile	2

8) Presence of own training rooms, presentation and demonstration equipment for trainings – according to this criterion can determine availability and the willingness to provide these auditoriums for conducting joint trainings with international organizations (table 8). Possibility to use appropriate presentation and demonstration equipment for trainings - this criterion shows the readiness of the training center to use its own equipment for conducting a visual practical part of the training.

Table 8

The scale for evaluation of the criteria "Training rooms and equipment"

Name of criteria	Description	Value
Training rooms and equipment	No training rooms and equipment	0
	Training rooms or presentation equipment	1
	Training rooms, presentation and demonstration equipment	2

9) Possibility of conducting various forms of training sessions is a criterion that shows the possibility of rapid adaptation of the training center to the needs of its participants, i.e. conducting training sessions not only in the form of lectures or seminars, but also with the departure of the company, conducting tours or webinars, etc. (table 9). According to the results of the Internet research, the following possible forms of training were identified: lecture; seminar, practical, laboratory training sessions; non-traditional types of training sessions; excursions; individual training sessions; consultations: individual, group; webinars and trainings at the enterprises.

Table 9

The scale for evaluation of the criteria "Forms of training sessions"

Name of criteria	Description	Value
Forms of training sessions	One of the possible options described above	0
	Two or more of the options described above	1
	All possible options described above	2

10) Availability of own trainings in the field of energy efficiency of the company – this criterion to evaluate the availability of training courses, which are held on a regular basis and worked full-time coaches (table 10).

Table 10

The scale for evaluation of the criteria "Own trainings"

Name of criteria	Description	Value
Own trainings	no	0
	yes	1

Based on the results of questionnaires and telephone interviews of the centers, each of them was assigned an appropriate assessment according to the established scale, which is described above. To determine the total index of the training center, the indicator of the dispersion of the values of the evaluation of the corresponding criterion for the ranking of centers with respect to its maximum possible estimate was used. The deviation shows how much the average values of each criterion deviate from its maximum value on average. Given this, the total index of the training center for each center was calculated. Formation of the specified rating is carried out by using the total index of the training center. I.e. the center, which has the lowest total index, is the most attractive and promising for further cooperation with international organizations in the direction of development of training activities. Conversely, if the center has the highest total index, then it is the least attractive.

Below in Table 11 are shown the results of the assessment of the attractiveness of Ukraine's training centers in the field of energy efficiency.

Table 11

The results of the assessment of the attractiveness of Ukraine's training centers

#	Name of the training centre	Scope	Number trainees	Frequency of trainings	Quality certification / state license	Target group	New training programs	Qualification of trainers
1	Training centre 1	2	2	1	1	2	1	2
2	Training centre 2	2	1	1	1	1	1	2
3	Training centre 3	2	1	1	0	2	1	1
4	Training centre 4	1	1	1	1	2	0	2
5	Training centre 5	2	2	1	0	2	1	0
6	Training centre 6	1	1	1	0	1	1	1
7	Training centre 7	2	1	0	0	2	1	2
8	Training centre 8	1	1	0	0	2	0	2
9	Training centre 9	2	2	1	0	2	0	0
10	Training centre 10	2	1	0	1	1	1	1
11	Training centre 11	1	1	0	1	1	0	1
12	Training centre 12	1	1	1	0	1	0	0
13	Training centre 13	1	1	1	0	1	0	0
14	Training centre 14	0	1	0	0	1	0	0

#	Name of the training centre	Training rooms and equipment	Forms of training sessions	Own trainings	Total index
1	Training centre 1	1	1	1	1,732
2	Training centre 2	1	1	1	2,236
3	Training centre 3	1	2	0	2,449
4	Training centre 4	2	1	1	2,236
5	Training centre 5	1	2	0	2,828
6	Training centre 6	1	1	1	2,828
7	Training centre 7	1	1	1	2,828
8	Training centre 8	2	1	1	3,000
9	Training centre 9	1	1	0	3,162
10	Training centre 10	1	1	0	3,162
11	Training centre 11	1	1	1	3,317
12	Training centre 12	1	1	0	3,606
13	Training centre 13	1	1	1	3,464
14	Training centre 14	1	1	0	4,359

After evaluating all the factors, it is possible to allocate TOP-5 training centers in Ukraine. The above training centers prepare more than 500 students for the academic year, including 30 % of the female audience. Training is carried out at least once

a month. The designated centers conduct trainings in three or more training programs, the training lasts more than three days. It should also be noted that these centers are interested in cooperating with international institutions for the further development and harmonization of training programs in accordance with international requirements.

With regard to trainers who are directly involved in training, all trainers have higher education in the energy sector, in addition most of them have academic degrees.

The main training and qualification measures and capacity needs of training institutions for civil building energy efficiency for potential improvement of already existing training

Designing training program is an important component of systematic approach to training. If it could be possible, training experts will be consulted. Designing training programs will be involved determining the level of participants, identifying the resource persons and selecting appropriate methods and techniques for training.

Also the recommendation for an improvement of training programs by extending the analysis of existing training programs beyond a suitable mix of training methods. A judicious mix of one or more methods should be adopted to suit each training program. Some of the important training methods are enlisted below: lecture, discussion, case study, role play, brain storming, computer assisted learning, exercise, business games, on the job training, project work, programmed learning.

The training objective and the outcome an event seeks to achieve determine the choice of training method. For example, if the objective is to develop technical skill, then there is need for practical exercises; if conceptual skill, then case study could be a method. If attitudinal orientation is intended, then role-play is an appropriate method.

In today's market for conducting trainings, seminars and advanced training courses, it is necessary to evaluate trainers not only by professional skills and hard skills, but also taking into account soft skills. Therefore, this study proposes to assess the soft skills that are lacking for trainers during effective trainings that would later be implemented as a business project:

1) activity of the trainer during the training is the ability of the trainer to attract the attention of listeners to unusual information, to ask interesting questions, to surprise with bright performance, to include the students in the joint decision of educational issues and tasks.

2) flexibility of the trainer during the training – this is the ability of the trainer to find compromises, solutions, accept changing conditions and quickly adapt to them. Flexible trainer should be able to easily adapt to any changes, and sometimes even provoke them.

3) communicability of the trainer during the training – is the ability of the trainer to establish contacts, the ability to constructively communicate with the students, as well as the decisive skill of successful social interaction, affecting both professional and personal relationships.

4) purposefulness – a conscious and active direction of the coach for a certain result after the training of students. Such a trainer knows exactly what he wants to bring to the attention of the audience, where to go and what to fight.

5) concentration of the audience's attention is the ability of the trainer to separate the important from the secondary and to keep the audience's attention to the goal throughout the time of the whole study.

6) decision-making – the ability of the coach in any situation to rationally choose solutions from the proposed alternatives, aimed at achieving a conscious result. In this context, it also means the ability of the trainer to assume responsibility for the consequences of the decisions taken.

7) teamwork and leadership is the ability of the trainer to create an environment in which the differences between the students are encouraged and healthy competition is welcomed, which ensures the best results for the team. The coach should take on the role of organizer of team interaction: to structure work in groups, to follow rules, to activate non-active listeners, and to hold a leadership position until the problem is resolved.

8) time management is the ability of the trainer to plan and allocate time for training as much as possible, namely: to set priorities for tasks according to their importance, to focus efforts on the most important material, to continuously conduct training only on the scheduled schedule, if necessary, to adapt the training schedule without losing the quality of the tasks, effectively delegate the tasks and control the progress of their implementation, respect the time of the listeners.

9) personal development – this desire and ability of the coach to constant personal development.

10) motivating yourself and participants is the ability of the coach to motivate oneself and others to achieve their goals through an appropriately structured system of values and attitudes that he himself realizes and follows.

11) conflict management is the ability of the coach to control his / her situation in conflict and stress situations, finding and implementing the most optimal solution that satisfies the decision of all parties to the conflict.

12) presentation skills is the ability of the trainer to demonstrate confident skills in preparing for a public speaking, engaging the audience and keeping the attention of the audience, able to create and conduct dynamic, effective and constructive performances.

The results of the assessment of main soft skills for trainers are shown in Figure 1 and Table 12.

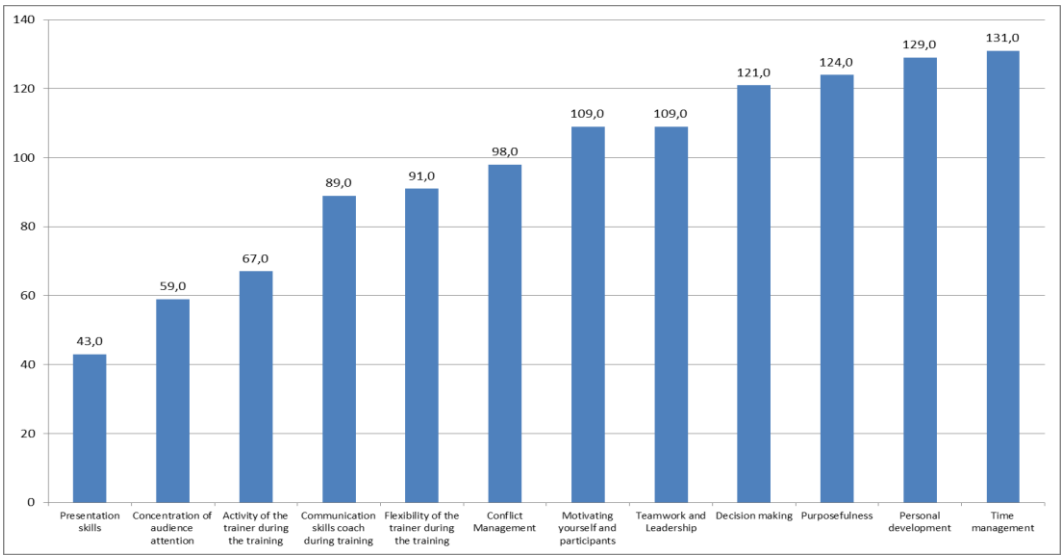

Figure 1. The results of the assessment of main soft skills for trainers

In order to further develop a competitive market for conducting trainings, seminars and advanced training courses, it is also necessary to evaluate existing training centers in terms of effective work and the possible lack of logistics for the implementation of their activities as business forms. To this end, this study proposes to assess the main components of training activities that are lacking in the training centers for the conduct of their business in the form of a business process, namely:

1) Training plans and problems of organizations in terms of energy efficiency of civil buildings – in order to identify the most relevant and necessary training programs in the field of energy efficiency, training centers should constantly study the plans of enterprises for the subsequent years of work, as well as problems that arise during the production process.

2) Determining the demand for training – to clearly understand how much the training center may receive financial profit next year, it is necessary to continuously determine the demand for trainings, seminars and advanced training courses in the field of energy efficiency of civil buildings.

3) Administration of training is the activity of the training center, which is connected with the study of the strategic tasks of state bodies, enterprises, institutions, organizations in terms of energy efficiency and development trends in the competitive environment, as well as in certain sectors of social production.

4) Defining the goals of learning – the basis for effective learning is the clear statement of goals and target orientation learning. Its manageability is connected with the possibility of a clear definition of the purpose, planning, designing the didactic process, operational feedback.

Table 12

The results of the assessment of main soft skills for trainers

№	Soft skills for trainers	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10	Expert 11	Expert 12	Expert 13	Expert 14	Expert 15	Sum of ranks	$S_j - S$	$(S_j - S)^2$
1	Activity of the trainer during the training	9	5	4	2	2	10	6	7	2	3	4	4	4	3	2	**67**	-30,5	930,25
2	Flexibility of the trainer during the training	8	9	11	1	6	11	7	6	5	5	3	1	5	9	4	**91**	-6,5	42,25
3	Communication skills coach during training	5	10	10	4	5	12	5	5	6	4	5	5	3	5	5	**89**	-8,5	72,25
4	Purposefulness	12	12	1	9	9	8	2	8	7	9	8	12	9	12	6	**124**	26,5	702,25
5	Concentration of audience attention	3	4	5	6	11	9	4	3	4	2	1	3	2	1	1	**59**	-38,5	1482,3
6	Decision making	10	6	6	10	4	5	8	2	9	10	12	11	10	8	10	**121**	23,5	552,25
7	Teamwork and Leadership	4	3	7	11	7	4	9	11	12	7	6	10	6	4	8	**109**	11,5	132,25
8	Time management	11	8	12	8	8	7	10	12	11	6	7	6	7	11	7	**131**	33,5	1122,3
9	Personal development	6	11	8	5	12	1	11	10	10	11	9	9	11	6	9	**129**	31,5	992,25
10	Motivating yourself and participants	7	7	2	7	10	6	1	1	8	12	11	7	12	7	11	**109**	11,5	132,25
11	Conflict Management	1	1	3	12	1	2	12	9	1	8	10	8	8	10	12	**98**	0,5	0,25
12	Presentation skills	2	2	9	3	3	3	3	4	3	1	2	2	1	2	3	**43**	-54,5	2970,3
																average	**97,5**	sum	9131

Skill, which most trainers do not have assigned the rank "1", a skill, which most trainers have assigned the rank "12".

To check the consistency degree views of experts determine the coefficient of concordance:

$$W = \frac{12\sum_{j=1}^{k}(S_j - S)^2}{m^2(k^3 - k)}$$

W	0,2838
Pearson criterion (calculated)	46,826
Pearson criterion (tabular)	19,68

The opinions of experts agreed

5) Assessment of knowledge and skills of participants, taking into account it when completing the groups is one of the most essential prerequisites for conducting qualitative training of students, because it is important to take into account a preliminary assessment of their knowledge and skills in the field of energy efficiency, as the students should get those hopes and achieve those goals, which were set before the beginning of training.

6) Actuality of the content of training programs – some programs in the field of energy efficiency have so far lost their relevance due to the lack of modern orientation of the content of training and lack of feedback.

7) Orientation training materials for real problems of participants – some trainings are conducted without taking into account the real practical problems that are constantly encountered by students at enterprises, organizations and institutions.

8) Methodical support – is implemented by obligatory accompaniment of educational activity of the students with all necessary teaching materials of the training.

9) Resource support – is implemented by obligatory accompaniment of educational activity of the students with all necessary technical means of training.

10) Logical structuring of training – the ability of learners to learn and process complex information is limited and very often varies according to the abilities of the training group, this contradiction can only be resolved by logical structuring of the content of the training.

11) Evaluation of effectiveness of training – after conducting an education, it should be evaluated for its effectiveness in order to understand whether the teaching methodology was chosen correctly and whether something needs to be changed in the future.

12) Support for participants after the training – the support is aimed at monitoring the effectiveness of the application of the training received by the participants in the practice, the identification of the need for further training.

It is necessary to organize: 1) observing the work of participants in real conditions of work after the training; 2) individual counselling in the workplace as needed; 3) discussion on the results of the training in terms of applied application of the knowledge gained, questions of response, counselling.

The results of the assessment of main components of training activities that lacking in the training centers for the conduct of their business in the form of a business process are shown in Figure 2 and Table 13.

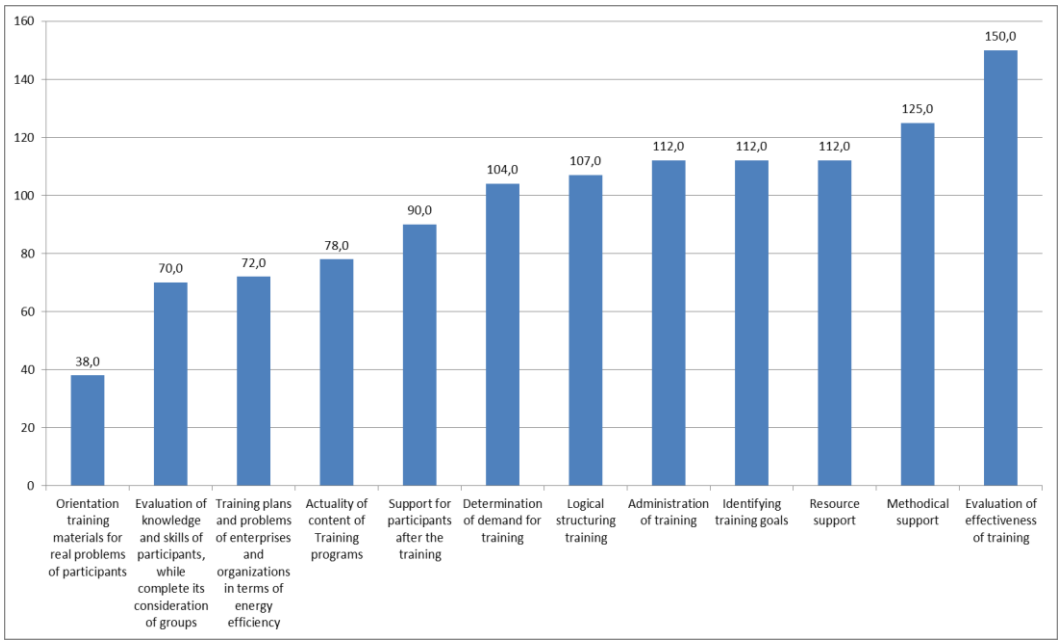

Figure 2. The results of the assessment of main components of training activities that lacking in the training centers for the conduct of their business in the form of a business process

Conclusions and further researches directions.

1. The research was conducted to develop a baseline of the training market for civil building energy efficiency, in order to gain a comprehensive understanding of the current offer and demand for trainings available on the market. This study aroused in connection with a necessity to conduct of significant change in the functioning of conditions of the training market for civil building energy efficiency.

2. In the article described of the methodical approach estimation of baseline of the training market for building energy efficiency which included: collecting, reviewing and conducting of analysis of the information on existing trainings and training institutions for building energy efficiency; conducting interviews with the relevant institutions and stakeholders on the training market.

3. In the study were 3. In the study were identified 10 key criteria for the assessment and ranking of training centers. Each criterion is appropriately described and has a score scale for its evaluation. After having been awarded points for each training center according to certain criteria, it was possible to allocate training centers.

4. identified the main components of training activities of training institutions for building energy efficiency for potential improvement of already existing training.

Table 13

The results of the assessment of main factors that lacking in the training centers for the conduct of their business

№	Indicator	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10	Expert 11	Expert 12	Expert 13	Expert 14	Expert 15	Sum of ranks	$S_j - S$	$(S_j - S)^2$
1	Training plans and problems of enterprises and organizations in terms of energy efficiency	3	1	3	5	10	6	8	4	6	5	6	4	3	3	5	**72**	-25,5	650,25
2	Determination of demand for training	12	6	10	11	4	7	9	11	10	4	3	5	4	4	4	**104**	6,5	42,25
3	Administration of training	1	12	9	12	3	12	10	9	3	7	5	12	5	6	6	**112**	14,5	210,25
4	Identifying training goals	2	10	7	4	8	8	3	12	12	6	7	11	8	7	7	**112**	14,5	210,25
5	Evaluation of knowledge and skills of participants, while complete its consideration of groups	10	2	4	3	6	3	5	5	4	3	4	3	10	5	3	**70**	-27,5	756,25
6	Actuality of content of Training programs	4	3	6	1	7	4	1	1	2	8	10	1	12	8	10	**78**	-19,5	380,25
7	for real problems of participants	5	4	2	2	12	1	2	2	1	1	1	2	1	1	1	**38**	-59,5	3540,25
8	Methodical support	7	7	11	10	9	2	7	7	7	10	12	10	7	10	9	**125**	27,5	756,25
9	Resource support	9	5	5	6	2	5	6	6	8	11	11	9	9	9	11	**112**	14,5	210,25
10	Logical structuring training	6	8	12	9	1	11	4	3	5	9	8	6	6	11	8	**107**	9,5	90,25
11	Evaluation of effectiveness of training	11	9	8	7	11	9	11	10	11	12	9	7	11	12	12	**150**	52,5	2756,25
12	Support for participants after the training	8	11	1	8	5	10	12	8	9	2	2	8	2	2	2	**90**	-7,5	56,25
																average	**97,5**	sum	9659

Indicators which most lack training center, given the rank of "1", an Indicator which lacks the least - the rank of "12".

	W 0,3002
Pearson criterion (calculated)	49,5333
Pearson criterion (tabular)	19,68
The opinions of experts agreed	

To check the consistency degree views of experts determine the coefficient of concordance:

$$W = \frac{12\sum_{j=1}^{k}(S_j - S)^2}{m^2(k^3 - k)}$$

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