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55 Years at the Forefront of Transport Continuous Professional Education







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ABSTRACT

A brief history of formation, evolution and development of the RAPS (Russian Academy of Transport and Transportation), one of the leading educational units of additional professional education in transport, is disclosed.

The objective of preparing the article was to summarise the experience of the Academy in solving the problems of improving additional professional education (APE) over a 55-year period. The method of retrospective system analysis was used as a toolkit.

The initial model of organisation of the educational process and the corresponding organisational structure of a new type of educational institution are presented. The importance of attracting the heads of railway corporate entities and leading scientists of branch research institutes and design organisations to conduct classes is shown.

Changes in the organisational structure of the Academy related to refinement and scaling of the tasks to be solved are described. The analysis of the use of various forms and methods of training was carried out, the expediency of final qualifying works of students in solving urgent production problems was substantiated.

The essence of changes in the system of advanced training in railway transport during the transition from a planned to a market economy is

revealed. The conceptual model of reorganisation of the Academy when working in terms of self-sufficiency is outlined. The procedure for the transition of an educational institution to full self-financing is described. The necessity of forming a new type of a teacher – an organiser of training is substantiated. The main features of the work in market conditions are revealed. The characteristic of the formed organisational structure of the Academy is given.

The methods of solving complex problems by the Academy in the conditions of the large-scale economic crisis of the 1990s, including freezing the cost of training students for a certain period, are analysed.

The main directions of development of the Academy in the 2000s and the results obtained are shown. The most significant implemented projects are disclosed, including organisation of training of leading specialists of railway transport abroad.

The gradual transition of the Academy in the 2010s to the advanced training of specialists in various types of transport is illustrated. An analysis of the problems associated with work during a pandemic was carried out. The ways of improving the skills of trainees using the webinars are disclosed.

The main trends for improving the work of the Academy in the medium term are formulated.

Keywords: transport education, Russian Academy of Railways, experience, problems, continuous professional education.

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INTRODUCTION

Improving the system of continuous professional education (hereinafter referred to as CPE) for personnel has always been an important task for development of domestic railway transport.

The *objective* of preparing this article was to summarise the 55-year experience of functioning of the RAPS (Russian Academy of Transport and Transportation) – one of the leading educational units of CPE in transport, to analyse the solution to the problems of organising and improving the efficiency of CPE in various economic and social conditions. As a tool, the method of retrospective system analysis was used, supplemented by an assessment of effectiveness of options for solving the problems considered.

RESULTS AND DISCUSSION

The first systematic data on advanced training in the Soviet period date back to the twenties of the last century. So, in 1928, there were 277 advanced training courses for workers of mass professions in railway transport in the country [1, p. 220].

The prototype of an organisation that trains railway transport managers appeared at the end of 1943, when the Higher Engineering Courses were organised in Moscow as an educational institution of a special type. The vast majority of course graduates were appointed to the railways and to the People's Commissariat of Railways of the USSR to senior positions [2, p. 38].

In the post-war period, the importance and relevance of advanced training of the engineering and technical staff of the industry on a systematic basis became even more obvious. However, it was only in 1968 that Moscow Institute for Advanced Training of Managers and Specialists of Railway Transport (hereinafter referred to as *IAT*) was organised, and at a number of other institutes of railway transport, were created departments for advanced training of specialists.²

Decree of the Council of Ministers of the USSR No. 515 determined the need for



Professor F. P. Kochney

a systematic approach to development of managers and specialists, with the decisive role of introducing advanced scientific, technical and technological developments into production. Therefore, advanced training structures were created on the basis of leading industry higher educational institutions. IAT, in particular, was originally organised co-using the educational and material base of Moscow Institute of Railway Engineers (hereinafter referred to as MIIT).

The rector of MIIT, D.Sc. (Eng), professor F. P. Kochnev, became the first head of IAT on a part-time basis, and Ph.D., associate professor A. M. Nikonov was appointed deputy director. It were they who did a great job of establishing the institute of a new formation and selecting the teaching staff.

The main problems of the initial period were associated with the choice of a model for organising the educational process and formation of an appropriate organisational and staffing structure. By a joint decision of the leadership of the Ministry of Railways of the USSR and MIIT, the faculty-departmental structure of an educational institution, traditional for universities, was adopted with full-time and part-time forms of education. Provision was made for advanced training courses (usually lasting two or four weeks), as well as opportunities for professional retraining of personnel.

The main thing was to ensure practical orientation of training. To this end, IAT began to attract the leadership of the main departments of the Ministry of Railways of the USSR and Moscow Railway, as well as leading scientists from branch research institutes and design organisations, to conduct classes. The listeners were given the opportunity to visit the leading enterprises of the industry, get acquainted with the use of new technical means and technologies, exchange experience in solving problems in other regions.



¹ Higher engineering courses were organised in accordance with the decision of the Council of People's Commissars of April 30, 1943 No. 709 on the basis of the order of the NKPS of the USSR of September 3, 1943 No. 679 / Ts.

² IAT and advanced training faculties were organised in pursuance of the Decree of the Council of Ministers of the USSR of June 6, 1967 No. 515 on the basis of the Directive of the Ministry of Railways of the USSR of December 19, 1967 No. 1401.

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In the early 1970s, IAT succeeded in generally organising practical work to improve the skills of industry employees. A great merit in this belonged to the new director of the institute, Ph.D. (Eng), associate professor A. M. Nikonov. The solution to the difficult problem of logistical support of the educational process was on the agenda.

Initially, IAT was located on the premises of MIIT. The administrative staff was housed in the offices of the second academic building. Training sessions were held in five classrooms rented from MIIT, and students who arrived for training lived in dormitory No. 1.

However, as the contingent of students grew, in 1984, by decision of the Ministry of Railways of the USSR, the building of student dormitory No. 3 was transferred to the Institute. Without stopping the educational process, the management and staff of IAT were able to organise the move. Dormitory rooms were converted into administrative premises, classrooms and laboratories, and part of the building was rearranged for accommodation of students.

By the beginning of the 1980s, IAT organisationally took shape as a steadily functioning educational institution and included three faculties (railway transport management; new equipment, technologies and economics; on-the-job training and economic education). Each faculty included several departments, the staffing of which made it possible to fully ensure the educational process [4, p. 129].

The success of IAT in implementation of CPE programs put on the agenda the question of the need to scale up the experience of the Institute. For this purpose, regional branches of IAT were created in Alma-Ata, Rostov-on-Don and Chita, and subdivisions in the status of

advanced training courses were created in five cities. This made it possible, among other things, to optimise the costs of railways for training their employees. The consolidation of the new status of the institute was reflected in its renaming into the *All-Union Institute for Advanced Training of Managers and Specialists of Railway Transport* (hereinafter referred to as AUIAT).³

The solution of complex and large-scale tasks was entrusted to the new director of the institute – Ph.D., Professor A. K. Alferov, who had extensive experience in practical work. As a result, in the second half of the 1980s in Moscow, classes were conducted at nine departments, in seven educational laboratories and four functional branches of the departments.

The functional branches of the departments, created on the basis of research and design organisations of the Ministry of Railways of the USSR, largely solved the problem of the practical orientation of advanced training for managers and specialists of the railway industry.⁴

In addition to traditional types of training sessions (lectures, seminars, practical and laboratory classes), active forms of training (analysis of specific situations, thematic discussions, visits to best enterprises) began to be used already at that time.

A special role in solving the problem of improving the quality of education was played by preparation of final qualification works by students with wording of specific proposals for improving the activities of their enterprises. The works were defended on a commission basis, with participation of representatives of the main departments of the Ministry of Railways of the USSR and railways. The final document on advanced training testified to the professional maturity of the listener and his ability to solve actual production problems.

Gradually, it became possible to move from annual to long-term planning of the Institute's work. So, in the mid-1980s, the first plan for development of AUIAT for a five-year period was approved.⁵ It provided for implementation of a wide range of activities in various areas.

³ Order of the Ministry of Railways of the USSR dated May 7, 1985 No. 520u.

⁴ Branches of the departments were created on the basis of VNIIZhT, PKTB ASUZhT, PKTB for locomotives, KB TsSh.

⁵ Order of the Minister of Railways of the USSR dated May 11, 1985 No. 23-Ts «On measures to further improve the advanced training of executives and specialists of railway transport».

Consistently there was an enhancement of own educational and laboratory base with samples of computer equipment, robotics and railway microelectronics. In 1988, an information and computing center was created on the basis of the Institute. Upon the instruction of the leadership of the Ministry of Railways of the USSR, demo versions of the software were provided for it, allowing students to form skills in using computer technology in various railway transport facilities.

The sharp slowdown in development of the domestic economy in the late 1980s, the beginning of the economic and political crisis of the country, the revision of the ideological component in management of educational institutions put on the agenda the need for serious changes in the system of advanced training in railway industry.⁶

If earlier it functioned on the basis of centralised budget financing and availability of an annual guaranteed order for training of students, then the transition to work in terms of cost accounting radically changed the requirements for organisation of work, the internal structure of the institute, the remuneration system and the nature of the activities of the teaching staff.

In 1991, professor B. A. Lyovin, D.Sc. (Eng), was appointed rector of AUIAT. In the conditions of a sharp decline in the volume of cargo and passenger transportation, he had to find a new paradigm for the activities of AUIAT, bringing it in line with the requirements of a market form of economic organisation. The Main Directorate of Personnel and Educational Institutions of the Ministry of Railways of the USSR, headed by E. M. Proshchenkov, provided effective support to AUIAT during the reform.

In a fairly short time, a conceptual model for reorganisation of the Institute was proposed. It provided for fundamental changes in the structure and economic mechanism of the work



Professor B. A. Lyovin

of educational departments, the prompt establishment of interaction with direct consumers of educational services – railway transport enterprises.

The priority area of activity of the teaching staff was a deep study of the educational needs of employees of all railway transport facilities and the maximum adaptation of curricula to the needs of the audience by eliminating irrelevant issues.

It is worth recalling that the beginning of the 1990s turned out to be very difficult for the entire system of CPE, most of the branch institutes for advanced training ceased to exist. Therefore, with good reason, we can talk about the correctness of the chosen priorities, which made it possible to safeguard the Institute and focus the efforts of its staff on:

- Minimisation of taking managers and specialists away from work through the use of the most appropriate forms of training (usually no more than a week) and, accordingly, reducing the cost of training for enterprises.
- Development of customer-focused training programs for professional development that deal in depth with one or at most two problems with mandatory demonstration of practical results and exchange of experience of specific enterprises.
- Formation of a new, different from the traditional for higher education, type of teacher or trainer organiser of training, focused on working in a self-financing environment, having not only a broad outlook in the relevant areas of activity of railway transport enterprises, but also personally knowing leading scientists and practitioners, able to attract them to conduct training sessions and develop methodological materials.
- Development of a complex of intra-institute normative documents regulating various aspects



⁶ Resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR of June 11, 1987 No. 665 «On the transfer of associations, enterprises and organisations to full cost accounting and self-financing», resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR of February 2, 1988 No. 166 «On restructuring of the system of advanced training and retraining of executives and specialists of the national economy».

⁷ In accordance with the instructions of the Ministry of Railways of Russia dated May 25, 1992 No. 115u, the institute again changed its name, from which the word «all-Union» was excluded. It became known as the Institute for Advanced Training of Managers and Specialists of Railway Transport.





Associate professor, Ph.D. M. N. Orlova, head of the department, conducts practical classes with the trainees in the 1980-s.

of the educational activities establishing a balance of economic interests in the activities of educational departments, administrative and service departments.

The work of employees of all administrative and service departments was subordinated to providing maximum assistance to teachers – organisers of training, the number of administrative staff was reduced to the minimum possible.

The implementation of the reform program required creation of new departments and involvement of qualified teaching staff. Due to inefficiency, faculty structures that were not directly related to organisation of educational activities were liquidated, as well as individual departments that lost their relevance, for example, the department of Marxism-Leninism [5, p. 15].

Energetic teachers were recruited to work at the created departments, each of which was assigned advanced training for the personnel of certain departments and divisions of the Ministry of Railways of Russia throughout the entire vertical structure – from linear enterprises to departments and the railway management apparatus.

At the same time, the staffing of the departments decreased. Part-time teachers-practitioners began to be widely involved in pedagogical work on an hourly basis. All this allowed the organisers of training to form teams of teachers focused on effective implementation

of the content of training programs for specific categories of students.

It should be noted that the vast majority of teachers invited to the Institute had excellent experience in organisational work in their previous positions. Their sense of responsibility for the assigned area of work served as a solid foundation for development of an effective system of advanced training.

Literally a year after the start of reforming the Institute, the situation with the contingent of trainees began to change for the better, the authority of the Institute among the leaders of railway transport increased. Particular attention and practical support to the activities of the Institute was provided by the Main Directorate of Personnel of the Ministry of Railways of Russia under the leadership of N. M. Burnosov and his deputy A. N. Timoshin, who substantively supervised the work of the institute.

In the changed conditions a transition to a new indicative system for planning of advanced training was proposed to the Institute, which was radically different from the previously existing directive. This system was based on taking into account the seasonal unevenness of work in many railway facilities, bringing the staff of workers in line with the volume of work, and many other factors. As a result, the Institute assumed the responsibility and function of forming a consolidated annual plan for advanced

training of managers and specialists of Russian railways for all railway universities.

At the same time, the leadership of the Institute came up with a proposal to start preparing a reserve [a succession pool] to take the positions of heads of railway transport enterprises. By decision of the Ministry of Railways of Russia, a pilot project was implemented to prepare a reserve for the position of heads of railway departments. Based on the results of the project, a department for training managers was created at the Institute, which, among other things, was entrusted with training a reserve according to the nomenclature of the heads of railways and the Ministry of Railways of Russia, and later JSC Russian Railways [6].

By the mid-1990s, the Institute was already the leader in the system of continuous professional education among educational institutions not only of railway transport, but also of other sectors of the economy. Taking into account the results achieved and the development trends of CPE, the Institute's Academic Council made a proposal to transform the Institute into the Russian Academy of Transport and Transportation (RAPS, from Russian abridged title literally meaning Academy of ways of transportation, but previously sometimes translated as Russian Academy of Railways). The proposal was supported by the leadership of the Ministry of Railways of Russia and officially formalised by the relevant Decree of the President of the Russian Federation.8

A fundamentally important point in development of the Academy was to follow the general trends in the field of higher education in the country. The management and staff of RAPS timely grasped the need for formation of large university complexes and came up with an initiative to join the academy to Moscow State University of Railway Engineering, which was secured by a decision of the Government of the Russian Federation in 1998.9

Since 1998, Ph.D., professor L. A. Karpov was appointed the director of RAPS, ¹⁰ who was given the task of further developing the educational activities of the Academy.



Professor L. A. Karpov

The start of RAPS activity as of a structural subdivision of the university coincided with a large-scale economic crisis in the country. The lack of working capital at the railway enterprises, long delays in payments directly affected the work of the Academy. Under these conditions, the principles of economic activity were immediately developed and approved by the decision of the Academic Council of the Academy, orienting the team to work in conditions of the strictest cost savings. The pivotal decision was to freeze the cost of education for a certain period.

Already in the following 1999, these measures gave a significant increase in the contingent of trainees (by more than 25 %), making it possible to begin solving the problems of a large-scale reconstruction of RAPS building, associated with replacement of emergency ceilings of the building, water supply systems, heat supply and street sewerage. In the course of reconstruction, the advantages of the inclusion of RAPS into the university were revealed. Repair work was carried out entirely at the expense of the Academy's own funds, while the university helped by issuing a «return loan», which was fully repaid within one half a year.

The reconstruction process of RAPS building took more than six years, but as a result, it became possible to equip six additional classrooms, allocate premises for specialised laboratories, create a dining room that meets all the requirements for 250 seats, organise a gym for students to practice sports during their free time. In essence, a kind of «campus» was created, where students were trained, lived, ate and rested.

In the early 2000s, one of the world's largest fiber optic data transmission networks was created on domestic railways with introduction of digital telecommunications and data processing systems. In RAPS, work was carried



⁸ Decree of the President of the Russian Federation of May 3, 1995 No. 438 «On the Russian Academy of Railways».

⁹ Decree of the Government of the Russian Federation of July 7, 1998 No. 722 «On the accession of the Russian Academy of Railways to Moscow State University of Railway Engineering».

¹⁰ B. A. Lyovin in 1997 was elected rector of Moscow State University of Railway Engineering.





Associate professor, Ph.D. A. A. Alexashkin conducts practical laboratory classes with the trainees in the 1980-s.

out to connect to this network, several computer classes were equipped, as well as a telecommunications training centre.

Thus, a reserve for the future was created for introduction of distance learning technologies that were revolutionary at that time, which made it possible to increase the contingent of students within the existing material and technical base. The first distance course was created under the Occupational Safety program, which made it possible to almost double the number of students in just one year [7].

In parallel, advanced technologies began to be used in the educational process of the Academy, which made it possible to radically improve the quality of education and use study time more efficiently. Elements of problem-based learning were included in the educational process, various trainings were started, focused on the peculiarities of organising the activities of personnel in market conditions, and formation of leadership qualities of future leaders [8].

Changing the traditional full-time form of education, inclusion of distance and e-learning components in it naturally required a change in the methods of work of trainers, the structure and content of curricula, filling their sections with relevant regulatory, methodological and educational materials.

In the late 2000s, by decision of the university management, it was decided to apply the experience of RAPS in formation of extra-

budgetary income from CPE in other structural divisions. By this time, the annual volume of advanced training and professional retraining on the basis of RAPS exceeded 12 thousand students, a further increase in the volume of work was limited by the capabilities of the material and technical facilities.

The position of Vice-Rector of the university for CPE education was introduced, deputy directors responsible for this area of activity were appointed in almost all University institutes, on the basis of local regulatory documents of RAPS, a general regulatory legal framework for the activities of university departments in the field of CPE was created. At the same time, the Academy assumed the functions of coordinating work in terms of planning, methodological guidance and organisation of CPE at the university.

In general, RAPS team has always been characterised by the ability to see the current problems of CPE and propose ways to solve them. We offer below the most eloquent examples.

Already in the early 1990s, the expediency of organising training abroad for the heads of Russian Railways to get acquainted with the peculiarities of the work of transport in a market economy was outlined. The experience of its first solution was associated with participation of then the Institute in a project to train representatives of the Ministry of Railways of Russia in Germany, France and the Netherlands at the expense of the European Union.

Participation in this project gave an opportunity to the acting managers of the railways, the reserve for promotion, teachers – organisers of training to get acquainted with the work of the railway transport in Europe. High assessments of the work of the Institute in the project by foreign partners made it possible to establish long-term business relations with them, to successfully continue work in other projects of the European Union, the European Bank for Reconstruction and Development, the World Bank for Reconstruction and Development.

The second time a large-scale experience of international cooperation was obtained during implementation of the structural reform of railway transport in the first half of the 2000s. At RAPS, a coherent system of organising targeted foreign internships in Germany, France, Finland, Spain and other European countries was quickly built. Training of groups of promising young specialists of the main divisions since focus on promising human resources of the company was of special importance. Great assistance in solving organisational and methodological issues was provided by the Department of Personnel Management of JSC Russian Railways, which at that time was headed by L. I. Vasina.

Another unique international project implemented by RAPS was the training of specialists of the DPRK railways under the program «Transfer of electric traction from direct to alternating current» in the framework of an agreement with ESCAP. The training took place over six weeks in Moscow and St. Petersburg with visits to 16 railway infrastructure facilities, including Sapsan high-speed train depot. There were a lot of unexpected problems that had to be solved during the educational process: from connecting a keyboard with the Korean language to computers, translating all materials into Korean and conducting classes with an interpreter, to organising daily training sessions on simulators in spare time. Nevertheless, the results of training were very impressive, and the assessments of international and Korean officials were only positive [9].

Over its 55-year history the Academy (IAT, AUIAT, RAPS) managed to form and then scale up several unique areas of advanced training to the entire railway network.

In 1987, under the guidance of D.Sc. (Medicine), professor A. Z. Tsfasman, the first department in the country on the problems of



Professor I. A. Epishkin

railway medicine was formed at AUIAT. A fundamentally new scientific and practical direction was formed within the department, when the study and diagnosis of occupational diseases of railway employees, the search for treatment methods were combined with generalisation of primary material and pedagogical activities to improve the skills of medical personnel of health institutions of railway transport.

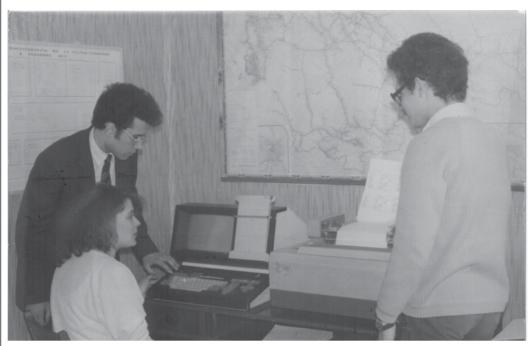
At the end of the 2000s, in pursuance of the Federal Law of February 9, 2007 No. 16-FZ «On Transport Security», the Academy was given the task of expanding the training of transport industry employees in the new topical area «Transport Safety and Security». The first positive experience of training employees of Rostransnadzor [Federal Service for Supervision of Transport] throughout the country was obtained already in 2010. Later, as part of preparations for the 2014 Winter Olympic Games and implementation of other measures to ensure transport security, employees of the main functional branches and subsidiaries of Russian Railways, as well as other transport organisations, underwent advanced training at RAPS [10].

The last five years of RAPS operation have become a period of major changes, challenges and trials. In 2019, there was a change of leadership at the academy, Ph.D. (Economics), associate professor I. A. Epishkin was appointed director. It was he who had to find solutions to complex and large-scale problems in very difficult conditions.

With the transformation of the Moscow State University of Railway Engineering into Russian University of Transport in 2017, substantive work began on formation of additional professional programs for employees of water and road transport, as well as the road construction sector.







Classes with first PCs in the early 1980-s.

To this end, it was necessary to establish cooperation with the Union of Transport Employers of Russia, research and educational organisations of the transport industry.

The Covid-19 pandemic, in fact, suspended the educational activities of the Academy. The sudden and swift ban on face-to-face education has led to the need to restructure both the educational environment and the training system. In this crisis situation, one of the few remaining opportunities for continuing education was found and practically implemented [11].

We are talking about mass introduction of webinar technology, when face-to-face classes were transferred from the traditional format (with the physical presence of students in the audience) to the format of online learning in real time using distance learning systems and tools. With this model of conducting classes, teachers and students were at work or at their place of residence, and communication between them was maintained through the channels of the Internet or corporate Intranet.

The positive experience of organising CPE during the pandemic has been very successful. The main tasks of training were solved, there were no cases of disruption of the educational process. This allowed in subsequent years, in the face of insufficient funding for advanced training, to effectively use the proven methodology for conducting webinars.

Over the past two years, RAPS has initiated and integrated complex projects in the field of CPE, which are being implemented by several structural divisions of Russian University of Transport with the possible involvement of other educational organisations, including the Corporate University of Russian Railways. This has become a new type of organisation of interaction between institutions, in which their scientific and pedagogical potential is integrated while respecting the financial interests of all participants.

The training is based on application of a competency-based approach to training of personnel of transport companies [12; 13]. Examples include the comprehensive program «Human Resource Management and Operational Efficiency at the Intersection of Sectoral Economies», as well as a project to improve the skills of employees of property management services, implemented for JSC Russian Railways in 2022–2023.

It is also worth mentioning a major project to provide documentary support for CPE, related to solving the problem of organising electronic document exchange. For five years (2018–2022), it was possible to build and debug the system, conduct trial operation and establish regular document exchange with more than 150 branches and structural divisions of JSC Russian Railways [14]. The well-established service has already been used by Russian University of Transport

subdivisions involved in organisation of workflow for students who pay for their training or study based on the contract with future employers.

This publication is dedicated to the anniversary date within the history of the Academy. However, it would be incorrect to talk only about achievements and successes. There are unresolved issues and issues to be addressed. In particular, it has not yet been possible to achieve a rejuvenation of the composition of the teaching staff. In conditions of complete financial self-sufficiency of activities, it will be necessary to search for sources of financing for updating the material and technical base, developing and becoming young teachers - organisers of training, and including them in the business processes of the Academy.

CONCLUSIONS

The Russian Academy of Transport and Transportation (RAPS) has approached its 55th anniversary as a modern structural unit of Russian University of Transport, developing in market competitive conditions in the field of CPE. The Academy has the ability to solve problems of any complexity. The main thing is to see the problems in a timely manner, correctly formulate goals and persistently achieve their implementation.

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