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Evolution of Views on the Managers' Competence in Russia: Past and Present

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ABSTRACT

The paper compares the state and solutions to the problems of forming and assessing the competencies of graduates of the educational system in the field of management in Russia in 19th century with the conditions of the digital society of modern post-reform country. The study emphasizes the similarities and differences in ways to this topic both on the part of the educational community and from the business sphere. Why do similar problems arise again? What are the reasons for the divergence of ideas about the competencies of managers in the education system and in business? What government programs, as well as methods and technologies of teaching and learning, have tried in the past and are trying now to minimize the discrepancy between the needs of business for competent managers and training programs? The paper confirms the hypothesis that the Russian education system, both in the past and in the present, does not fully meet the expectations and business assessments in training management specialists. And this, in turn, confirms the spiral cyclical nature of the evolution of managerial thought.

Keywords: management history; history of managerial thought; educational system; managers-graduates competencies of educational institutions; metrics for assessing managers competencies; IQ; EQ

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INTRODUCTION

The problems of coherence between the education systems goals and certain expectations in the field of public and/or private economic management have been topical throughout the existence of economies and their management. In any approach to possible solutions of these problems, it is necessary to coordinate all the components of *competences*: their list (knowledge, skills, and abilities), contents, metrics and assessment criteria and, as a result, the competence indicators (*the existence of competence*) of managers from the viewpoint of both the educational system and the business community ("business") as the "consumer" of graduates.

The quality of a management graduate is herein understood as "the degree of consumer satisfaction", which in this case means satisfaction of business with competent specialist in the management field. Today, the competence approach in education is incorporated into many professional industry standards, as well as the so-called "Work programs in academic disciplines" listing the above-mentioned competence components. For example, on July 20, 2020, the Ministry of Labour and Social Affairs of the Russian Federation established a new professional standard "Specialist in the field of management of public-private partnership projects".[1] The present article also deals with professional qualities of project management specialists.

Characteristics and possible solutions of the problems of forming and assessing management competences are herein approached on the basis

[1] Order of the Ministry of Labour and Social Affairs of the Russian Federation of 20.07.2020 № 431 « On establishment of the professional standard 'Specialist in the field of management of public-private partnership projects'". URL: http://fgosvo.ru/uploadfiles/profstandart/08.041.pdf (accessed 14.08.2021).

of historical management research conducted earlier by one of the authors of the present article [1, 2], as well as the materials of the XXI International Conference on the History of Management Thought and Business, where another author made his own presentation.[2]

One of the organizers of this event uniting more than 50 representatives of Russian and foreign organizations, besides the Faculty of Economics of the Moscow State University, was the journal "Management Sciences", which also published an informational article on the conference.[3] This article, among other things, raises the issue of training managers in the context of their contribution to company management performance: "What is the role of management training, coaching, and management consulting in solving the problems of measurability of management relations and management in general?"

In the present article, the historical comparative method of scientific cognition, once effectively applied and taught by V. Goltsev in his course "Management science" at the Moscow Imperial University in 1880–1881 [3], is used. Goltsev's idea is still topical nowadays: "Observation of the past and present life of humankind — as far as the present day can be impartially and correctly assessed — lights the way for the future, empowers us with knowledge and ideas which help us to direct the course of history rather than remain powerless witnesses and involuntary victims of this course". The choice and use of the above-mentioned research methods, according to Goltsev, enable identification of stable management principles, necessary for real action: "The task of the applied section of the management science consists in... developing principles in the limitless field of relations between the managers and the managed" [4].

HISTORICAL APPROACH TO THE PROBLEM IN THE 19TH CENTURY

Since the history of this issue has been already dealt with in other publications, only certain key aspects related to the topic of this article and presented in historical management research [1, p. 372–462] and some legal documents will be examined herein.

Being aware of the need for competent businessmen, the liberal Emperor Alexander I, by his Decree of June 22, 1804, established the Moscow School of Commerce (MSC), which existed until 1917. It was a social class-based, closed educational establishment accepting 10-year-old boys in the following two categories: envoys of the Moscow Merchant Society, supported by donations from businessmen, and boarders, supported by their parents. The students formed four age groups (classes), spending 2 years in each of them — thus, the full study course lasted 8 years. As can be deducted from the very first study programs, the students were taught merchant calculations, basic accounting, geography, physical, commercial (economic), and natural history, manufacturing technology, business correspondence (in Russian, French, German, and, later, English), composition, and style.

MSC trained highly professional young managers for all business spheres: trade, manufacture, banking, and other. According to its founders' plan, the School was intended to intellectually empower the forming trading and manufacturing class in Russia. It was not easy to study at MSC, with its extremely strict discipline and high performance requirements, considered nowadays as *competencies* and *competence*. Only the most talented and diligent students were able to finish the course. The rest were dismissed

[2] Materials of the XXI International Conference on the History of Management Thought and Business. Moscow: Faculty of Economics of MSU; 2021:152–159.

[3] XXI International Conference on the History of Management Thought and Business "Assessment problems in social project management: yesterday, today, tomorrow" Management Science. 2021;11(1):106–108.

from MSC regardless of their age. The following figures are therefore hardly accidental: out of 895 students accepted into MSC between 1804 and 1854, more than half (462) were dismissed before finishing the course, while 433 completed the course. Even though MSC did not have the status of a higher education institution, its graduates were granted the degree of *Candidate of Commerce*. With their brilliant professional training, fluent in 2–3 foreign languages, raised in the spirit of Christian morality, MSC graduates were highly sought after in all entrepreneurial firms [1, p. 375].

In November 1828, by decree of Emperor Nicholas I, another education institution was established — the St. Petersburg Practical Technological Institute of Emperor Nicholas I (SPPTI). Its goal was to "train people possessing relevant theoretical and practical knowledge for managing factories or factory parts".[4]

These historical examples prove the ongoing relevancy of the following two problems: on the one hand, the society becomes aware of its need for managers of public and/or state economy, and on the other hand, the education system responds (though not always effectively) to these needs. Unfortunately, there has always been a discrepancy between the first and second subjects of this objective process.

Professionals with experience in both education and business have always been the most responsive to the problem of manager competence levels in the education system and economy (or business). One of the most outstanding examples of such a professional was I.A. Vyshnegradsky (1893–1895), director of SPPTI (1875–1880), the founder of the automatic regulation theory (1877), Minister of Finance of the Russian Empire (1887–1892).

An important feedback tool between any business activity and the education system consisted in the commerce and industry congresses in Russia, where fundamental managing issues, including the manager training quality issues, were discussed. For example, in 1870, I.A. Vyshnegradsky opened the sessions of the 6th sector of the First Commerce and Industry Congress in St. Petersburg with a presentation "On improving the higher technical education in Russia". He pointed out that a specialized higher education institution cannot provide ready practitioners: it can prepare a specialist who will soon become a great practitioner; it can give a specialist lots of knowledge, lots of practical information, but it "cannot provide him, without doubt, with managing skills he will need in practice or with any other numerous qualities which are necessary and which can only be acquired through being constantly engaged in business, constantly giving all one's attention to it and thus learning it step by step". Then, while suggesting measures for solving the problem of forming *"managing skills"* in a graduate, Vyshnegradsky said: "It is highly desirable that a graduate do not immediately occupy a very responsible position in a factory or plant but rather first acquire the skills which, besides theoretical education and practical work knowledge, are absolutely necessary for being responsible and managing business. These skills include: knowing local resources, knowing the market, knowing the workers, knowing how to deal with them, and many other skills and competences, without which even the most educated technician will be a bad manager".[5]

Another member of that congress, D.N. Kaygorodov (1846–1924), the founder of the "Russian Society of World Science", the father of Russian phenology, professor of the St. Petersburg Forestry Institute, suggested

[4] The supreme approved order of establishing the St. Petersburg Practical Technological Institute. The complete laws of the Russian Empire, 2nd part. St. Petersburg: Printing House of the II department of His Majesty's office; 1830. V. III, 1828. № 2463. P. 1034–1038.

[5] Protocols and stenographic reports of the first All-Russian Commerce and Industry Congress, 1870. St. Petersburg; 1872. P. 9.

another solution for the problem of "attaining practical results and eliminating the lack of practice" among students of technical institutions: the institutions must make an agreement with factory and plant owners, according to which the latter would "allow the students to perform practical work in order to acquire practical knowledge, while the amount of practical training must be increased; the current practice of 5–6 days spent in a plant is very inadequate; when practicing, the students are usually acquainted with the descriptive part only while having very little chance to familiarize themselves with practical methods. It is therefore necessary to acquaint the students with the factories where they will work in future, provided with a small fee in the beginning".[6]

The manager and specialist training problems of more than 150 years ago still sound very relevant, and the solutions suggested still seem rational.

At the Second Commerce and Industry Congress in July 1882 in Moscow, among many managing issues, personnel issues were also raised and specially discussed in the VII sector "Statistics and technical education":

"2) Does the knowledge obtained in the technical and commercial schools correspond to the demands of our industry?

3) How can a closer connection between factory and plant owners and technical school graduates be established?"[7]

A month after the II Russian Commerce and Industry Congress, the I Russian Technical Society Congress took place in Moscow (August 1882), where 13 personnel issues were discussed in the special X sector. Two of the issues are cited below as an example:

"1) On the level of necessity of compulsory school attendance by all juvenile and minor workers and the definition of the compulsory school attendance age…

8) Since one of the reasons for slow development of our industry is the inadequate training of masters and managers of different manufactures, which, in its turn, results from the inaccessibility of our model factories to people wishing to acquaint themselves with the improvements and methods used in these factories — a way must be found to reach a general agreement between factory and plant owners in order to make these factories accessible to technicians, and a course of action must be chosen in case such an agreement cannot be reached".[8]

At the III Commerce and Industry Congress (St. Petersburg, 1896), the competence flaws of industry managers, engineers, and technicians were comprehensively described in the presentation by the engineer S. Shishkov: "A vast amount of superficial knowledge and absence of deep knowledge in a favourite field. Ignorance of commercial geography, life and customs of their own country, Russian laws, principles and importance of commercial accounting. Their perception of their own profession is often incorrect and non-commercial.

Lack of criticism in respect of their trade, choice of assistants, etc.— in other words, excessive business innocence, complete absence of even the basic economic and life experience.

Passivity and lack of initiative resulting in the desire for a public office post and readiness to abandon their field to work as teachers and government officials. Lack of character. They are not used to do their work quickly and efficiently from the beginning".[9]

The measures for eliminating the flaws in training practitioners, managers, engineers,

[6] Ibid. P. 11.

[7] Works of the Commerce and Industry Congress organized by the Russian Industry and Commerce Assistance Society in Moscow, July 1882. S. Petersburg; 1883. V. I. P. X.

[8] Works of the Russian Technical Society Congress in Moscow, 1882. St. Petersburg; 1883. V. I. P. XII–XIII.

[9] Works of the All-Russian Commerce and Industry Congress of 1896 in Nizhny Novgorod, 6 vol.. St. Petersburg; 1897. V. IV. P. 68.

technicians, whose work is always connected to other people, as suggested throughout those years by practitioners and researchers, seem to be very useful and correct. All the presenters, responding to the first question of the Congress — "What kind of technicians — with higher, secondary, or basic technical education — are currently most needed in the Russian industry?" — criticized the then existing organization of practicums in education institutions and suggested expanding and completing it with a new form of acquaintance with the manufacturing process and acquisition of managing skills — "to live and work in a factory" until graduation.[10]

The following critical words about work practice are extracted from the presentation by the technician A.F. Zimmermann: "Every trainee sought to get acquainted with the production technics and paid no attention to anything else… This lack of attention to anything non-technical, in the future technician's opinion, affects him later to a considerable degree. Sooner or later, the practicing technician becomes a factory manager himself and starts coming across a number of failures and difficulties". Having encountered a number of practical problems, an academically trained engineer cannot solve them or does so with great difficulty. As a result, the factory owner "finds out about the organizing and economic skills of his managing… engineer and, asking him 'What have they been training you for?' — dismisses him to search for a different position".[11]

A possible solution to this problem was suggested in the presentation of the engineer S.A. Nazarov on inviting practitioners to deliver lectures and special courses. On this suggestion, the following resolution was made by the Congress: "It is considered useful for practitioners to deliver some additional information in specialized higher education institutions, in addition to the regular lectures by professors".[12]

Along with the all-Russian industry-wide congresses, regional and industry-specific congresses were also held, almost always discussing topical issues of training managers and specialists for the regions and industries. Some of these issues, cited below, still sound quite up-to-date:

- activity of the Russian education institutions aimed at the innovational economy branches stemming from the cardinal changes which were taking place in the country in the end of the 19th century (when "the age of steam, coal, and iron" was giving way to "the epoch of electricity, steel, and oil");
- the current material situation of the education institutions;
- contents and balance of the compulsory and specialized study subjects;
- actuality and effectiveness of the study programs;
- availability of teachers and the level of their professional training.

The changes in the industrial economy structure prompted Russian society to revise their education choices: prominent merchant families started sending their children to higher technical education institutions and schools — the St. Petersburg, Kiev, and Warsaw polytechnic institutes, the Moscow Imperial Technical School, and other. Engineer graduates of technical institutions were demonstrating their managing competence in factories much sooner, starting from the positions of chief engineers of production and later becoming mid-level and top managers, or even directors of different company boards. Many of them, having gained economic management experience in private companies and in the public sector, were invited

[10] Ibid. V. VI. P. 15.

[11] Works of the All-Russian Commerce and Industry Congress of 1896 in Nizhny Novgorod, 6 vol. St. Petersburg; 1897. V. VI. P. 92–93.

[12] Ibid. V. I. P. 57.

by education institutions to occupy positions of lecturers and professors.[13]

On the whole, having examined the discussion of personnel issues at Russian congresses only, the following conclusions can be drawn:

Firstly, academic researchers and practitioners were aware of the quality problem of training production managers and specialists throughout the 19th century.

Secondly, the main reasons behind this constantly resurging issue was the lack of educated managers and specialists and insufficient specialization of their training in managing skills.

Thirdly, the necessity of specialized training of future managers, required by their profession, i.e. their ability to solve a number of production, technical, and social problems, was constantly (as its acuteness was growing) pointed out.

The "Draft of the general normal plan of industrial education"[14] can be named as the peak (or top) of development of the views on the competences of Russian managers. A brief history of the Draft was as follows: after long discussions and waiting period, Russian pedagogues and academics brought about the establishment of a special Department of academic committee on technical and professional education under the Ministry of Public Education. On January 13, 1884, this department was assigned the task to prepare a draft reform of technical and professional education. This was not the first attempt, considering the fact that as early as February 21, 1878, preparation of such a reform had been assigned by the Emperor's decree to the Ministry of Finance, which supervised most technical education institutions before 1881. Yet since 1881, "all the tasks of industrial education organization" were assigned to the Ministry of Public Education. In autumn 1884, the draft reform was ready and submitted to the Ministries and departments, and then, after making the recommended amendments, referred to the State Council in 1886.

Though the author of the Draft was never mentioned, many historians studying Russian education considered as such the above-mentioned I. A. Vyshnegradsky. "The main and exclusive credit for developing the current education system… which made an epoch in the history of public education in Russia, must go to… Ivan Alexeevich Vyshnegradsky as the author of the "Draft of the general normal plan of industrial education" [5, p. 15].

Some features of the Draft are cited below. In the beginning, the requirements for the plan developed are formulated:

- The plan must be adequately coordinated with the industrial needs. "The industrial education must prepare for industrial activities people who are indeed suitable for this task, equipped with the necessary knowledge and skills to such a degree as to become, without any particular difficulties, after a not excessively long practical post-graduate training, useful workers in the relevant areas and on the relevant positions of the industrial field".[15]
- The plan must be unique in each of its five parts, in accordance with the five hierarchical levels of the managing and producing personnel system as discussed below. As a specialized education plan, it must be coordinated with "the system of relevant levels of general education", thereby continuing and completing the relevant general education.

[13] See the following: 1. List of graduates of the Moscow Imperial Technical School and former industrial school, with indication of their professions in 1845–1889. Moscow; 1889. 2. The Board of Directors in 1897. St. Petersburg; 1897. 3. Commercial and industrial Russia. Reference book for merchants and factory owners, ed. Blau. St. Petersburg; 1899. 4. Personnel of all boards and agents in charge in 1901–1902. St. Petersburg; 1901.

[14] Draft of the general normal plan of industrial education in Russia. St. Petersburg; 1886. 93 p.

[15] Draft of the general normal plan of industrial education in Russia. St. Petersburg; 1886. P. 2.

• The plan must prepare specialists for practical activity of a particular level only and must not be considered at any of the five stages as a transfer step "to a school intended for preparing high-profile workers. Previous experience demonstrates that schools pursuing both these goals never reach any of them".

• "The plan of industrial education must, if possible, include or at least not exclude the rather numerous technical and artisan education institutions already in existence",[16] eliminating the flaws discovered in them.

Further, the plan describes the five categories ("levels") of managing and industrial personnel needed by industry and targeted by this plan:

1. Engineers with experience and "academic and technical education, able to improve production on the basis of the latest Russian and foreign scientific research, ready to engage in a successful competition with other industrial institutions for both improving the quality of their products and reducing the costs of production". Vyshnegradsky argued that if there is no such engineers in Russia, "the country will be doomed to either stagnation and gradual decline of its industry or constant dependence on foreigners…"[17]

2. "Industry managers educated in commerce, who understand the technical nature of industry and would be able to independently manage the trading sector of even the largest industrial enterprise, and who possess sufficient technical knowledge" to discuss technical improvements with engineers.[18]

3. Technicians, the closest assistants of engineers, who must be equipped with the knowledge "necessary for both thorough and correct production" and performing research and development works.

4. Masters with perfect knowledge of the technical side of the industry branch, able to manage workers and "possessing the necessary skills for effectively guiding the activities of their workshops towards the best industrial results".

5. Workers performing the tasks assigned to them "with sufficient thoroughness and accuracy" under the guidance of their masters. Very important characteristics of the workers include "their overall development, moral level, conscious attitude towards their work".[19]

The plan further elaborates on the requirements for each personnel group, evaluates the existing training system and flaws of each of the five groups, describes in detail the training contents, study plans and programs, forms and time periods, provides estimates of the costs of study organization for each personnel group, and draws a list of the new institutes, real and industrial schools, workshop schools to be established, as well as suggest their territorial distribution in Russia.[20]

This is a brief history of discussions and decisions on competent manager formation in 19th century Russia.

CONTEMPORARIES' VIEWS ON "THE MANAGER LIFECYCLE"

Management, guidance, and leadership can be taught and even learned. "Skills, methods, and ways of communication can be learned easily and quickly. Theories, strategies, and tactics of leadership — everything taught in short-term courses and weeks-long seminars — can be mastered. Yet on the other hand, it is evident that feelings, intuition, emotions, insight, ambition, thoughtfulness, compassion, euphoria — that is, all the passions inherent to leaders and the leadership passion itself, which alone creates leaders — cannot be easily acquired or developed. The

[16] Ibid. P. 3.

[17] Draft of the general normal plan of industrial education in Russia. St. Petersburg; 1886. P. 4.

[18] Ibid.

[19] Ibid. P. 4–5.

[20] Draft of the general normal plan of industrial education in Russia. St. Petersburg; 1886.

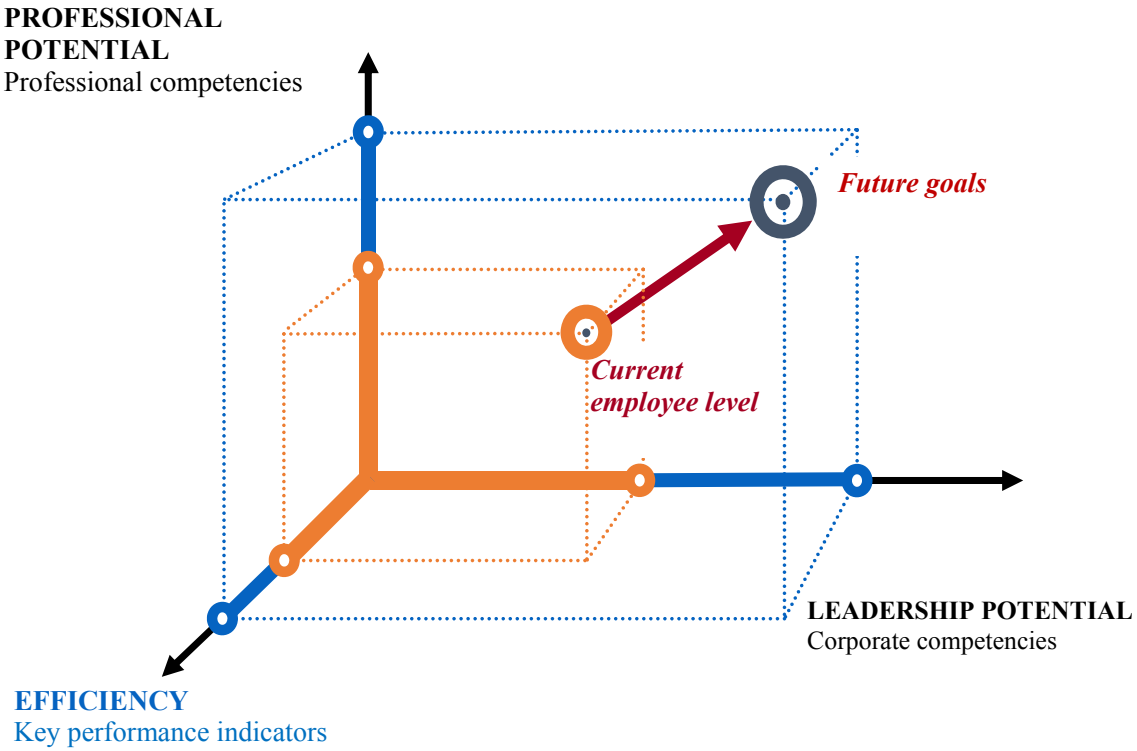

Fig. 1. **The "increment cube" of a manager's competencies**

Source: developed by the authors.

wisdoms taught in short-term leadership courses can help the student become more effective as a leader but won't make them into a leader if they are not one already" [1, p. 843].

An important role in formation of professional managing competence is played by one's natural predisposition to it. It must be noted that Sergey Yulievich Witte (1849–1915), who in 1892 took over the post of the Minister of Finance from I.A. Vyshnegradsky due to the latter's illness, also mentioned natural human predisposition to management: "Those who do not know how to choose people, do not have an instinct about people, those who cannot assess people's abilities and flaws — cannot, in my opinion, be good administrators and manage a big business" [6].

Present-day cognitive scientists also note that professional abilities are largely (by 60–70%) dependent on one's innate predisposition [7].

Thus, the capabilities of the education system for specialist competence formation are quite limited and make about 30–40%. Metrics of evaluation of professional qualities must therefore include evaluation of one's innate predisposition, while the evaluating "filters" of the education system must be adjusted according to these metrics not only for graduates but even more so for evaluating applicants, including those of the primary and secondary education system.

One of the present-day internationally recognized authorities in the management field, Richard Farson, argues: "Learning makes people look alike, since everyone studies the same things. Education, on the other hand, makes one reconsider their own life experience in the light of great ideas. Thanks to this re-evaluation people begin to differ from one another. That is why the main value of education is that the manager becomes a unique, independent and sincere person" [8].

The age-old problem of forming specialist competences in the management field in

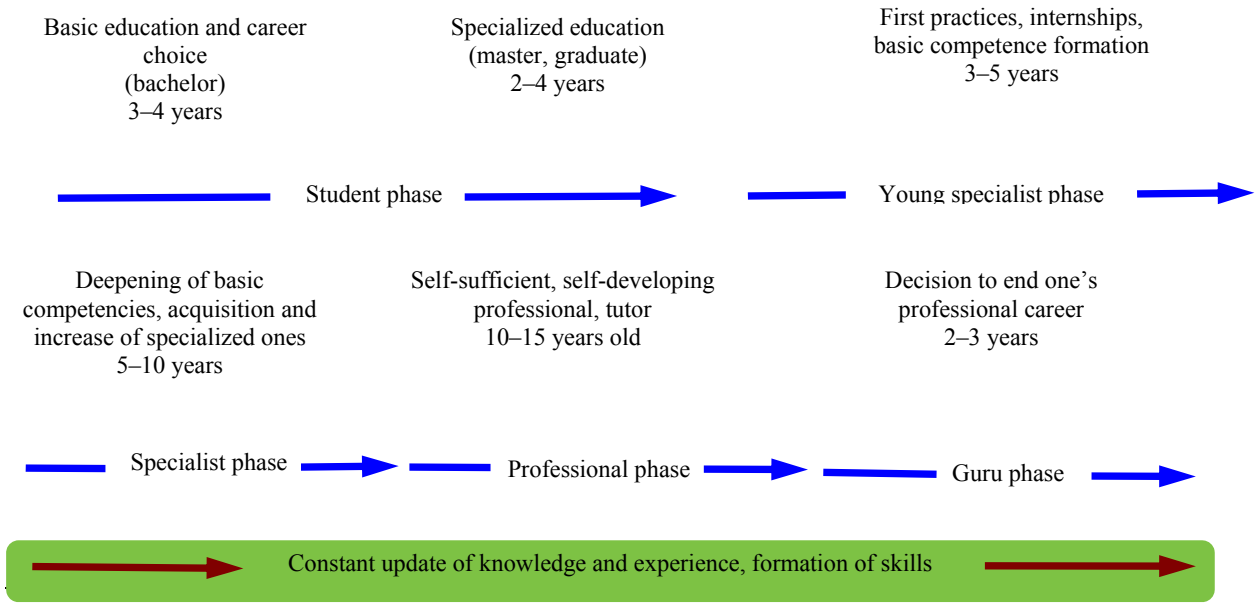

Fig. 2. **Project manager life cycle**

Source: developed by the authors.

practical business often takes the form of questions:

- Why is it difficult to find a professional manager?
- How does one become a manager?
- How are professional managing competences and professional competency formed?
- How can one's natural predisposition to management be discovered and developed?
- What does the time of return on investment (ROI)[21] into the formation of a professional manager depend on?
- How can the effective, productive phase of the manager lifecycle be prolonged?

The process of competence accumulation can be visually represented as an "increment cube" (*Fig. 1*).

Despite considerable differences between the stages of professional manager formation in different countries, many details of the manager lifecycle are similar everywhere. According to the data of the International Project Management Association (IPMA), manager is fully formed as a professional by the 37th year of their life only.[22] Only after this age a manager can be trusted with managing an important project in European business.

If manager competence evaluation is viewed objectively, it will be evident that a Russian project manager "comes of age" around the same time as a European one — the "Professional" phase of their lifecycle starts at 30–40 (*Fig. 2*).

There are several gaps in the professional manager lifecycle:

- Gap between the higher education and secondary education systems;
- Gap between the requirements of higher education institutions for graduate managers and the employers' requirements;
- Gap between the coherent gained experience of past professionals and its use by present-day managers.

[21] ROI (return on investment) is a financial metric illustrating the level of profitability or unprofitability of a business in accordance with the amount of investments made into this business.

[22] Veikko Valila et al. "How to find the Project Managers for big projects?" Proceedings of the 22-th IPMA World Congress, Roma, 8–11 November, 2008.

GAP BETWEEN THE HIGHER EDUCATION AND SECONDARY EDUCATION SYSTEMS

Why does not the basic secondary education in present-day Russia include the subject of "management" (though 19th century Russia introduced it as early as at the primary education level)?

In some Western countries, the general secondary education systems include management basics, yet this knowledge is hardly effective for starting the formation of a manager as a specialist. The same can be said about the Soviet school system, where management basics were taught as a part of the Sociology subject.

In the Western countries, the manager lifecycle starts in specialized colleges, which have the status of specialized secondary education institutions. The present-day process of education system integration is actively affecting Russia, which leads to some positive changes.

Yet on the whole, the current integration and standardization process is still not free from outdated or, at best, only present-day knowledge and technologies taught by study centres — while the goal of the education system nowadays must be to form knowledge and skills to be needed tomorrow.

M. Gasparov describes the tasks of specialist training as follows: "Family teaches what society achieved 20 years ago. Street life teaches what is current, and school teaches what is to come in 20 years' time" [9].

Yet the above-mentioned attempts at reforming the study process still resemble teaching the achievements of the western society and the existing rules of "street life". Russia is being adopted into the "family" of standard-forming countries, but rather as a "dowerless girl". The Bologna process can illustrate this one-sided "standard infusion" into Russia.[23]

[23] The European higher education area in 2020. Bologna process implementation report. URL: https://eacea.ec.europa.eu/national-policies/eurydice/content/european-higher-education-area-2018-bologna-process-implementation-report_en

Gap between the requirements of higher education institutions for graduate managers and the employers' requirements

The Russian (Soviet) education system was once regarded as one of the most effective in the world. Many Western countries used and still use its achievements and give it the credit. For example, the Russian system effectively minimized the basic methodological contradiction: standardization of the study process was combined with democratic approaches. The Russian education system took the most active part in forming the world education.

This is what recognized Western experts in education wrote in the beginning of the previous century: "In terms of the social composition of pupils and students, by 1915 in Russia education was one of the most democratic in the world. Only those children whose parents did not wish them to go to school did so. Never before had education developed as rapidly as during this period" [10].

The process of management education in Russia is difficult to be unified (standardized): at the *entrance,* the student pool is usually unimaginable as a homogenously trained environment. The current education *system* has no effective entrance filters to solve this problem. Some students are not fluent in the minimal entrance vocabulary, others, possessing considerable experience, aim at learning to solve specific situational problems in management; some have problems with basic literacy, etc. As regards the filter of result quality at the *exit* of the education process, the problems here are currently as numerous as at the *entrance*.

Thus, if integration and standardization are approached systematically (using the process approach), it will be natural to perform integration with the use of the European and world standards of the education process, as follows:

1) start with standardization of the process *entrance*;

2) then, standardize the process itself, the transformation technologies of the *entrance* objects and subjects;

3) apply the performance quality standards of the education system to the process *exit*.

The global standardization processes, infiltrating the current Russian education system, lead to an excessive focus on the narrow, "blinkered" professional training to the detriment of the general spiritual and cultural personality development. The averaged approach to individuals is gaining ground, the high school of management starts resembling the gross specialist training system "of the Western type". Neglecting intellect, talent, and morality leads to degradation of moral values, a drop in prestige of highly educated people. On the other hand, integration and standardization allow highly educated lecturers, gifted students and postgraduates to choose Western education institutions for studies and career. Integration and standardization do not solve the problem of "brain drain".

GAP BETWEEN THE EXPERIENCE OF PAST PROFESSIONALS AND ITS USE BY PRESENT-DAY MANAGERS

One of the significant problems of present-day management is incorrect understanding and use of the knowledge systems created by predecessors. Present-day specialists use patterns which can be effective in a specific environment, under specific circumstances. A metaphorical comparison between present-day management and art can be made as follows: present-day Postmodernism claims credit for taking, for example, the alarm clock devised half a century ago, examining it by taking it apart, and then creating "compositions" on installation scenes by means of arranging these parts in a certain "order". Yet unlike those who designed the alarm clock, the present-day managing "Postmodernism" does not include the assembling function. The consumer of the products of the present-day "arthouse" management has to "enjoy the unique installations of alarm clock parts". Practicing specialists overlook such "installations" and regard the experiments of "arthouse methodologists" as purely metaphysical.

POSSIBLE REASONS FOR THE GAPS

The problems of gaps in the education system have been pointed out by many specialists. For example, one of the founders of the Soviet educational system, P.L. Kapitsa, said: "When attending postgraduate entrance exams, I used to notice that professors highly valued not the students who understood the most but rather those who knew the most. Yet science needs people who understand. This is why it is so difficult to choose students for postgraduate studies on the basis of their exam results. In order to choose the most promising students, they must be observed for a certain period of time, when they are engaged in activities that allow them to demonstrate their creative instinct, their ability to think independently. In my opinion, it is the gap between education and research institutions that has led to the pool of young scientists being much weaker nowadays than it used to be in my time, when most scientific research was done in education institutions" [11].

In a human-centred education system, the study process focuses on forming respect towards other people and oneself. "Without self-respect, there is no moral purity and spiritual wealth in a person. Self-respect, honour, pride, dignity — all these form the stone, on which the fine feelings are sharpened... Yet in order to instill self-respect in a forming person, the educators themselves must deeply respect the human personality in their students" — said one of the main pillars of the Russian (Soviet) education system, V.A. Sukhomlinsky [12]. Pedagogues must treat their students as equals to the study system is the basis of professional specialist training. Only creative work of teachers and tutors contributes to development of creative abilities in their students. Yet only a few outstanding education workers are trying to abandon

"the mass production of specialists"[24] and open to people the possible ways of self-education, self-development, personality formation, and professional skills acquisition.

SOME SPECIFICITIES OF PROJECT MANAGER TRAINING IN THE CONTEXT OF DIGITALIZATION

In production/operating activities in the context of digitalization, in cases demanding fast procession of big data and high reaction, humans can poorly cope with such cognitive pressure and fall far short of artificial intelligence (AI). On the other hand, digital environment soon leads workers to a drop in creative productivity and emotional burnout. Information technologies and digitalization of life diminish one's creative abilities, especially the heuristic one (ability to accumulate fundamentally new knowledge) [13]. Big data flows,[25] fast changes in forms and contents of information, its diversity and irrelevance (noises, sounds, unnecessary visualization) fundamentally interfere with human creative abilities. Under extreme conditions, a quick and effective decision is usually made by the manager in an altered state of consciousness (ASC) [14, 15]. Under this state, the decision-making process utilizes to the maximum (usually at the unconscious level) all one's accumulated experience and natural predispositions (genetically transmitted information) [7], "error correction" barriers are lifted [16], and professional intuition manifests itself to the utmost. As a general rule, highly professional and experienced managers substantiate their quick and important decisions by referring to their intuition, experience, and instinct. Unfortunately, even the "strongest" AI currently lacks these unique resources intrinsic to the human mind [17, 18].

In project management, when new and unique products or services are created and nonstandard problems need to be solved, which no one has ever solved yet, it is practically impossible to fully replace a human with artificial intelligence. However extensive databases, encyclopedias, and libraries AI might use, whatever performance and processing capacity it might have — AI is hardly able to make fundamentally new heuristic discoveries and create fundamentally new knowledge.

Even the latest AI versions based on effective hybrid technologies of the "semiotic"[26] and "bionic"[27] approaches cannot enable AI to become essentially equal to a human in emotional intellect (EQ). As regards the prospects of replacing humans with AI in the IQ field, it is quite possible, and in the nearest future AI might successfully compete with humans in these parameters. Yet AI cannot be compared to humans in EQ.

Generally speaking, in the present article EQ is understood as the ability to recognize emotions, understand one's own and other people's intentions, motivations, and wishes, as well as the ability to manage one's own and other people's emotions in order to solve certain problems. All these abilities can be conditionally assessed in an integrated way by means of, for example, special tests developed by professionals. This EQ assessment is regarded as a separate managing competence, along with other relevant competences, such as the following:

- empathy;
- mediation;
- psychosomatic health management;
- personal time management;
- self-development management;
- rhetoric.

[24] A typical problem in present-day Russia is the oversupply of "specialists" with management diplomas and certificates accompanied by the lack of professional managers.

[25] Big data are a vast amount of information, often unstructured, stored on a digital medium. This term is also used for the technologies of searching for, processing, and using vast amounts of unstructured information.

[26] The semiotic approach is based on the notion of communication as interaction through signs, sign systems, languages, codes, i.e. as a process of emergence of understanding and creation of new meanings.

[27] Bionics studies biological systems and processes for the purpose of using the knowledge thus acquired for solving technical problems.

The ability to plan one's time and form time resources determine the style and performance of management. Managers must naturally demonstrate their abilities to effectively manage one of their main resources — health (both physical and psychical) before claiming the responsibility of managing a team (including people's health). Managers' professional level depends, among other things, on their experience and intuition. Theoretical knowledge without experience cannot guarantee quality management. Experience combined with theoretical knowledge, skills, and innate abilities forms intuitive assessment, which often play a crucial role in choosing the way of proceeding in management, just like in art.

As demonstrated by specialized research in the management field, managers spend 75% of their time on communication, specifying various details of their projects and processes, explanation, establishing mutual understanding between team members, meetings, consultations, correspondence, etc. Therefore rhetoric is the main managing tool — in this case, it is the art of adequately conveying their ideas to the addressee. Diplomacy is one of the effective managing tools. A diplomat is a person who thinks seven times before saying nothing. Diplomacy is the skill of being cunning in a good sense of the word. Cunning is the ability to purposely withhold some information at the right time and in the right place. Diplomacy is compatible with conscience. Diplomacy contributes to forming respect towards other people and can guarantee respect to a person who has this competence. Without respect, there can be no trust. Trust is one of the fundamental principles of effective managing process.

AN EXAMPLE OF COMPETENCE ASSESSMENT OF A HIGHER EDUCATION GRADUATE

The difference in managing competence assessment by education institution graduates and business representatives in present-day Russia largely resembles that of 19th-century Russia.

As an example, a comparison between self-assessment of competence by a higher education graduate and assessment of this graduate by their employer in IT business is presented below.

The metric list had been approved by the employer and the graduate not only at the notion level (glossary), but also at the indicator level of each metric.

The metrics listed in the previous section were chosen as the main ones, with some addition — 12 metrics were used in total:

- General knowledge (IQ).
- Emotional intellect (EQ).
- Development management.
- Innate abilities assessment.
- IT knowledge.
- Empathy.
- Mediation.
- Diplomacy.
- Rhetoric.
- Health management.
- Time management.
- Memory management.

The graduate had been provided with examples of each metric scale and the boundary values of the indicators where the 100% position was given to the competences of hypothetical gurus (for example, E.V. Kaspersky was chosen as the fundamental example in IT, E.M. Primakov in diplomacy, H.K. Kasparov in IQ, etc.).

For assessment, the employer gave the graduate professional tests in each metric, compiled by well-known and recognized specialists in the relevant fields (for example these tests, also available online: the Eysenck test for IQ, the Hall test for EQ, the Szondi test for self-development, the Cattell test for empathy, etc.). The employer, familiar with the strengths and weaknesses of the tests from both their own experience and professional reviews made by specialists in the relevant fields, summarized his final assessment of the graduate's competence, while the latter

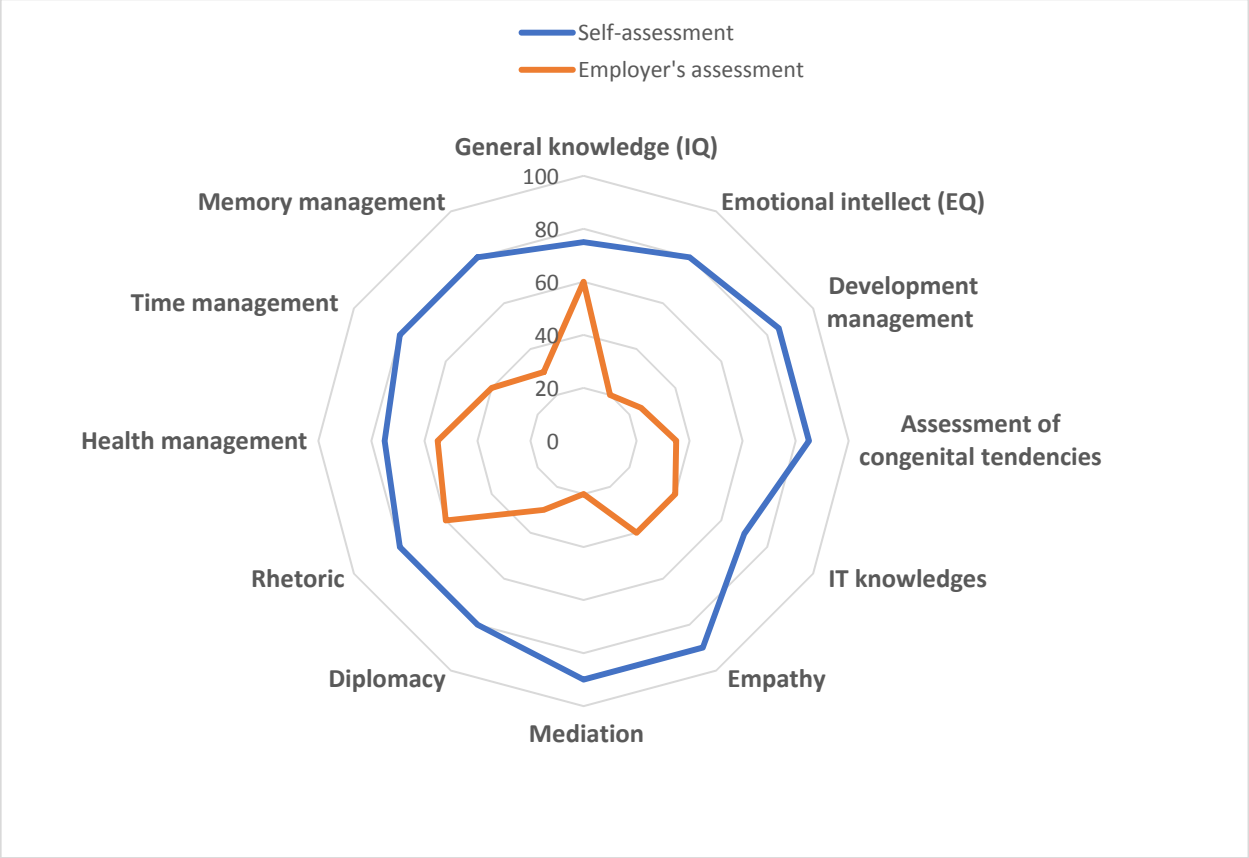

Fig. 3. **The example of comparing the assessments of competencies in the management of a university graduate**

Source: developed by the authors.

did not know the employer's final assessment until the completion of the self-assessment procedure.

Such procedures were conducted for four graduates of Business Informatics. In the course of studying towards this qualification at university, the student had learned a number of subjects, directly and in applied way related to management. This example cannot of course be considered systematic or representative, yet it can serve as a trigger for further research in this direction. Even being fragmental, it partly reflects a fair view of the current state of affairs within the problem studied.

Some results of similar tests of IT graduates (about 20 people) employed in their fields, which were conducted in 2018–2019, were published earlier.[28] These results belong to different metrics of competence quality assessment, but they essentially resemble the data presented in *Fig. 3*.

On the whole, the examples above demonstrate that graduates acquire sufficient professional knowledge in their education institutions but completely lack managing competences needed in practical business. This partly explains the dissatisfaction of the business environment with the quality of managing specialist training, which in its turn results in great demand for specialized training centres, corporate universities, advanced training courses, etc.

[28] Materials of the XX International Conference on the History of Management Thought and Business. Moscow: The Faculty of Economics of MSU; 2019:89–96.

IMPACT OF THE PANDEMIC AND POST-PANDEMIC ON THE SOCIETY NEEDS IN RESPECT OF EDUCATION GOAL TRANSFORMATION

The pandemic has made new demands for the personnel training system. For example, according to McKinsey, 25% of the working-age population of developed countries will have to change their professions.[29] This requires a fast response from the state education system and corporate study centres. While the latter respond to business needs during the pandemic within 2–3 weeks, the former take much longer to transform their education process. The education system is demanding flexible processes with fast responses to the changing business needs. Under the pandemic, a considerably more important role will be played by corporate culture, organizing potential, corporate knowledge bases, knowledge management systems, and competence forming systems.

The pandemic has accelerated the digital transformation in public management. Firstly, the accelerated digitalization has increased the number of task of improving public activities in the fields of data openness, collection, use, and protection. Secondly, many public services have motivated citizens to "go online" by means of increasing the number of services available online from home. Thirdly, the digital transformation has made it possible to develop and improve management models. Yet there are still some barriers for further digitalization in all economy sectors — for example, the lack of relevant regulating documents and the insufficient level of public awareness.[30]

In Russia, investments into technologic start-ups related to telemedicine, distance treatment, and monitoring, online pharmacies, artificial intelligence and data analysis, and technologic education projects have increased [19].

The pandemic has changed the priority of and demand for intellectual resources and disclosed new tendencies in digitalization and automatization of the production process. Production robots are becoming more intellectual and are provided with artificial intelligence [20]. On the whole, there appears to be a tendency towards development of the abilities of the "weaker" AI by means of providing it with large dictionaries, encyclopedias, high-speed big data processors. The latest AI developments are focusing on increasing their IQ indicator [21]. This tendency demonstrates that in the nearest future AI will reach the human IQ level and probably surpass it. Thus, humans will not be able to compete with AI in IQ level; yet AI will not be able to come close to the human level of emotional intellect any time soon. The education system must therefore re-orient its goals from providing students with *knowledge* towards the priority of developing their *emotional intellect,* i.e. to focus its main efforts on the pedagogic and training field.

CONCLUSIONS

The problem of forming a body of professionals in the management field has been topical in Russia since the 19th century.

One of the main reasons behind the slow development of managers as professionals consists in the fact that the Russian system of general secondary education lack a subject dealing with disciplines of project management, though the basics of these disciplines could start being taught even in primary school, as it used to be in Russia in the beginning of the 19th century. Professional education institutions underestimate the importance of innate

[29] McKinsey & Company. How COVID-19 has pushed companies over the technology tipping point — and transformed business forever. 05.10.2020. URL: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever (accessed: 23.07.2021).

[30] Kharitonov, G. Pandemic stimulates digital transformation of public management. 20.01.2021. URL: https://ac.gov.ru/en/comments/comment/26576 (accessed: 26.07.2021).

qualities of people with a propensity to effective management. The existing mechanisms of competence assessment should include analysis and assessment of these qualities along with assessment of the intuitive, empathic, and holistic abilities in project management. The education system does not fully coordinate its managing specialist competence assessments with the expectations and assessments of the business environment.

Why do the problems of coordinating requirements towards manager competence in education institutions and in business continue in Russia for so many years? One of the reasons might be the fact that the spiritual development of people fall significantly behind the technical and technological one. While higher education graduates have rather high professional level of technic knowledge (in our case, in the IT field), their development of competences needed directly in managing processes and their formation of emotional intellect, knowledge and skills of social organization management still experience the same problems today as they did in the 19th century.

In the 1880's, Victor Goltsev as a representative of Lorenz von Stein's school argued that the essence of the executive (managing) branch of power consists in "improving individuals" or, using the terms of the present-day management glossary, "forming specialist competence". The almost half-century development cycle of project management standards since the 1960's until present demonstrates a stable trend of moving from requirements for the quality of the final product to the quality the management process and, finally, to the quality of the specialist competence. The requirements for the quality of the manager competence are becoming topical today, as they used to be in the 19th century.

The present article, though only fragmentally reflecting the changes in views on management competence in Russia, provides an illustration of the cyclic nature of management though development.

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