

Breakthrough solutions in policies for training, attracting and utilizing talents to develop science, technology and renovation

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● Talents - people with outstanding abilities and renovative spirit - play a key role in solving major challenges, from social development management, basic scientific research, advanced technology development to leading the comprehensive digital transformation process. However, to maximize the potential of talents, the policy system needs to be strongly and dramatically improved, creating a favorable environment for development, dedication and creativity. The article discusses breakthrough solutions to policies for training, attracting and promoting talents to build a high-quality workforce so as to serve the development of science, technology, renovation and national digital transformation. These groups of breakthrough solutions contribute to creating a solid foundation for the country's sustainable development in the context of the digital age. The article is the result of the research of the state-level project code KX.04/21-25.

1. Introduction

In the context of Industrial Revolution 4.0 and the explosion of digital technology, science, technology, renovation and digital transformation are becoming key driving forces to promote socio-economic development and enhance national competitiveness. Resolution No. 57 of the Politburo on breakthroughs in science, technology, renovation, and national digital transformation affirmed: “Developing science, technology, renovation and national digital transformation is a top important breakthrough, a key driving force to rapidly develop modern productive forces, perfect production relations, renovate national governance methods, develop socio-economy, prevent the risk of being left behind, and bring the country to breakthrough development and prosperity in the new era”⁽¹⁾. To realize the goal of developing science, technology, renovation, and national digital transformation to build a strong Vietnam, training, attracting, and utilizing talents is not only a strategic task but also an urgent requirement.

Overall, previous studies have provided multi-dimensional perspectives on attracting, training, and utilizing talents. This article will focus on analyzing breakthrough solutions in policies for training, attracting, and utilizing talent, contributing to building a high-quality human resource force, effectively serving the development of science, technology, renovation, and national digital transformation. These solutions not only meet immediate needs but also aim at long-term goals, building a sustainable foundation for the country's development in the new era.

2. Content

2.1. Policy breakthrough solutions in talent training

Firstly, build a special, comprehensive, and competitive scholarship policy. One of the most effective ways to attract excellent students is to provide special, comprehensive, and competitive scholarship packages that meet the learning, research, and living needs of learners. It is very important to establish special, full-tuition talent scholarships with great value, including not only tuition fees but also support for research, living expenses and short-term courses abroad. This creates conditions for students and learners to study and research with peace of mind, and develop their talents. These scholarships should focus on areas that have a great impact on national development such as artificial intelligence (AI), renewable energy, biomedicine, and nanotechnology. These scholarships should also aim to encourage international students and learners. Specifically, this scholarship policy is not only aimed at domestic students and trainees but also needs to be expanded internationally, thereby attracting talents from other countries to Vietnam to study and research.

Secondly, policies to create an excellent academic environment. An advanced and creative academic environment is a core factor in retaining good students and trainees. Inviting leading professors and scientists from home and abroad to teach and research at training institutions is an important way to attract talents. Attraction policies should focus on competitive salaries, research support packages and good working conditions. Another important solution to create an excellent academic environment is to develop the existing teaching staff through organizing training programs and academic exchanges to improve the professional qualifications, teaching skills and research capacity of lecturers.

Connecting with international experts is also an important solution. This is a way to encourage research and teaching cooperation with foreign experts to create a global learning environment. In addition, excellent academic environments in many fields need advanced equipment and laboratories. Fields such as physics, biology, chemistry, and engineering require modern, internationally standardized laboratories.

In addition, the application of technology in teaching is also really necessary to create an excellent academic environment. That is the use of digital technology, virtual reality, artificial intelligence to enhance interaction and efficiency in learning. Another



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important solution is to build creative learning spaces through smart libraries, creative classrooms, or interdisciplinary research centers, where students can freely learn and exchange. At the same time, the important point of an excellent academic environment is to increase funding for research projects for postgraduate students, encourage them to participate in international cooperation programs and publish research in prestigious journals.

An excellent academic environment is not only a place for students to acquire knowledge but also a space for them to explore, create, and develop comprehensively. With well-planned investment policies in teaching staff, facilities, academic culture, and internationalization, Vietnam can build a high-quality academic system, thereby training talents capable of contributing to sustainable development and international competitiveness.

Thirdly, the policy of renovation in training programs. Training programs need to be designed flexibly to meet the practical requirements of the labour market and global science and technology trends. Training programs also need to be designed flexibly to suit the abilities, interests, and goals of each student. Personalized learning paths help maximize each person's potential, especially in fields that require creativity such as science, technology, and engineering. In an era of complex problems requiring multidimensional solutions, interdisciplinary training becomes extremely important. For example, mathematics can be combined with artificial intelligence to solve big data problems, or biology and nanotechnology can work together in the field of precision medicine.

Project-based training is also a necessary solution for curriculum renovation. Applying project-based learning or research-based learning methods allows students to apply theory to practice. This not only helps improve professional skills but also trains teamwork and problem-solving skills. Training programs also need to be closely linked with businesses, research institutes, or international organizations so that students have the opportunity to intern and work in a real environment.

In addition, the use of online learning platforms, artificial intelligence, virtual reality and augmented reality to create a modern, highly-interactive learning environment is really necessary. In addition, the use of learning data analysis tools to monitor the progress and performance of learners, thereby providing personalized suggestions and optimizing the training process should also be encouraged. In addition, the renovation of training programs should focus on using international textbooks and learning materials, combining teaching in many languages, especially English. Along with that is the development of student, lecturer, and research exchange programs with international universities and organizations, creating conditions for learners to access a multicultural learning environment. In addition to professional knowledge, talents also need to be equipped with creative thinking so as to meet the requirements of the future labour market.

Fourthly, policy on renovation ecosystem development. A renovation ecosystem is a network of elements, including people, infrastructure, policies and supporting organizations, that work together to promote renovation, research and development. For talent training, developing an effective renovation ecosystem will facilitate capacity development, stimulate creative thinking and help individuals to make achievements in strategic areas.

The specific elements and measures to develop this ecosystem are as follows:

Firstly, establish renovation centers at universities, research institutes, or high-tech parks, where students can access the tools and resources needed to realize their ideas. *Secondly*, invest in modern laboratories with advanced technology for students to conduct experimental research. For example, laboratories in the fields of artificial intelligence, biotechnology, or new materials. *Thirdly*, create flexible workspaces for groups of students or young researchers to collaborate on developing ideas. *Fourthly*, connect science, engineering, and technology to create opportunities for interdisciplinary collaboration. For example, mathematics and data science can be combined to develop new machine learning algorithms. *Fifthly*, use artificial intelligence, machine learning, big data, and blockchain technology to enhance renovation and research capabilities. Apply virtual reality and augmented reality technologies to teaching and research activities so that learners can access complex real-life situations in a safe environment. *Sixthly*, develop online platforms to share academic resources, research materials and innovative ideas among members of the ecosystem and expand cooperation with leading scientific institutions, universities and enterprises in the world to learn from experience and promote technology transfer.

Overall, to attract excellent students to study in key fields of science and technology, to develop their talents, to become talented people, it is necessary to combine attractive scholarship policies, excellent academic environments, and renovative training programs. At the same time, building a renovation ecosystem and raising social awareness of the role of science and technology are indispensable factors. These policies not only help to build a strong talent force but also contribute to taking Vietnam further in Industrial Revolution 4.0 and building a sustainable knowledge-based economy.

2.2. Policy breakthrough solutions in attracting talents

Firstly, financial policies and special incentives. A competitive salary and bonus mechanism needs to be established to provide salaries and benefits that are equal to or more attractive than those of other countries in the region. In particular, flexible financial packages for foreign experts and overseas Vietnamese need to be implemented, including: Exemption or reduction of personal income tax for the first 5-10 years of work; special bonuses for leading experts when participating in strategic projects; providing initial support capital or monthly allowances to help them stabilize life. A research and renovation fund is also really necessary to support overseas and international Vietnamese experts, scientists, and entrepreneurs. This fund can directly fund research projects, startups, or technological renovation.

Secondly, policies on working environment and development. Building an advanced and modern working environment is an important solution to create working conditions with facilities and research equipment that meet international standards at universities, research institutes and enterprises. Ensuring promotion opportunities is a necessary solution to provide a clear promotion path to leadership positions at organizations, research institutes and enterprises for overseas Vietnamese and talented foreigners. Promoting international cooperation is an essential solution to create opportunities for experts, scientists and businessmen to cooperate with international organizations and experts, thereby enhancing the value of work in Vietnam.

Thirdly, flexible immigration and residence policies. Long-term visas and simplified procedures are necessary to issue long-term work visas for 5-10 years with simple procedures to attract talents. This should also be applied to the families of international experts. Special residence cards are also really necessary to attract international talents. It is necessary to build a “Vietnam Talent Card” program for overseas Vietnamese and foreigners, with incentives such as long-term or permanent residence rights; free or reduced work fees, visa extensions; real estate ownership and investment rights in Vietnam. In addition, easy citizenship for international talents is also really necessary to attract talents. This policy should also create a mechanism for overseas Vietnamese to retain their original nationality, and simplify the procedures for obtaining Vietnamese citizenship for experts and their families.

Fourthly, family and life support policies. This policy solution focuses on education

and health care to ensure that children of overseas Vietnamese talents and international experts can study at international schools or public schools with policies of tuition support. This policy needs to provide comprehensive health insurance for experts and their families when working in Vietnam. This policy also needs to prioritize providing housing in modern urban areas with synchronous utilities; support for buying or renting houses at preferential prices and cultural support and integration for foreign experts' families.

Fifthly, policy on encouraging the participation in national projects. The “Global Vietnamese Intelligence” program needs to be established for overseas Vietnamese talents and foreign experts to participate in strategic science, technology and economic projects, such as: Developing artificial intelligence, renewable energy, biotechnology; consulting, building socio-economic policies; cooperating with domestic enterprises through renovative investment models. Moreover, overseas Vietnamese talents and foreign talents need to be given priority to take on leadership positions in major programs such as high-tech parks, business incubators or national projects on digital transformation.

Sixthly, policy on building a global network. A global network of Vietnamese experts should be established to create a platform for connecting Vietnamese talents abroad and domestic organizations, promoting cooperation in research, teaching, and development. In addition, the building of a global network should focus on linking universities, research institutes, and international enterprises to create a multicultural working environment that attracts foreign experts.

Overall, the breakthrough policies to attract overseas Vietnamese talents and highly-qualified foreigners play an important role as a basis to help Vietnam improve its international competitiveness and develop sustainably. With specific mechanisms such as attractive financial incentives, modern working environment, flexible residence policies and comprehensive support, Vietnam can become an ideal destination for talents around the world. The synchronous and consistent implementation of these policies will open up a future of strong and sustainable development.

2.3. Policy breakthrough solutions in utilizing talent

Firstly, policy on granting high autonomy and responsibility. One of the key points of the policy breakthrough solution in talent utilization is to assign key tasks to talents. Outstanding talents need to be empowered to preside over major projects and key national tasks, and have the right to choose fields and projects matching their personal

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strengths and passions to propose new research directions or solutions that they consider to be valuable.

Talents need to have full decision-making authority in their work scope, from budget management, human resources to implementation methods, enabling them to showcase their leadership and organizational strengths. When given autonomy, talents have the opportunity to use and apply their knowledge, skills and experience in the most effective way. They will have greater motivation to come up with renovative initiatives and solutions without being bound by rigid processes. Autonomy at work encourages talents to experiment with new methods, solve complex problems with creative approaches. When directly responsible for important tasks or projects, talents tend to work seriously, conscientiously and devote all their efforts to such tasks.

Along with empowering talent, specific accountability mechanisms need to be established to encourage them to totally devote themselves, to help them have right direction and motivation to perform the assigned tasks. Along with autonomy, talents must be directly responsible for work results, including both success and failure. In addition, a transparent evaluation system needs to be implemented to fulfill their committed responsibilities.

Secondly, policy on positioning talents in strategic positions. Planning talents in strategic positions is a key factor in maximizing their capacity and influence in planning, organizing, and implementing key national tasks. First of all, it is necessary to put talents in leadership positions in state agencies, research organizations, and key enterprises; prioritize the appointment of leading experts as strategic advisors or research team leaders in high-tech projects. The breakthrough policy of locating talents in strategic positions also needs to focus on creating opportunities for talents to participate in promulgating major policies on economics, science, technology, and education; ensure that the opinions and contributions of talents are listened to and implemented; put talents in senior advisory roles in the government, organizations, or enterprises; ensure that talents have a voice in strategic orientation; encourage talents to lead and train the next generations through direct mentoring and guidance programs. Moreover, this policy should also create mechanisms for talents to share their experiences and leadership skills in forums or talent development programs and place them in international networking positions, such as representing Vietnam in international science, technology or economic organizations. This creates conditions for talents to participate in international cooperation projects, thereby broadening their vision and enhancing their value.

Thirdly, policy of supporting career development and honoring talents. This policy needs to design a transparent career development roadmap for talents, with promotion milestones based on their abilities and contributions. This policy solution also needs to provide opportunities for talents to move to new fields if they wish and create a mechanism for talents to receive guidance from experienced advisors. In

addition, talents also need to be relieved of administrative burdens to focus fully on their core work. This policy solution should also focus on creating conditions for domestic talents to work, research and cooperate with international experts and organizations through building exchange programs and interdisciplinary research cooperation with major science and technology centers in the world. This policy solution also needs to focus on recognizing the contributions of talents in official reports, major conferences, and in the media; provide regular reward mechanisms, including financial as well as honorary recognition and public recognition of achievements to motivate and create pride for talents.

Empowering high autonomy and responsibility, planning talents in strategic positions, supporting career development and honoring talents are breakthrough policy solutions in talent utilization. By synchronously implementing these breakthrough solutions, Vietnam not only retains and utilizes domestic talents effectively but also attracts high-quality human resources from other countries, contributing to promoting Vietnam's rapid and sustainable development.

3. Conclusion

In the context of the world increasingly relying on science, technology and renovation to promote socio-economic development, building a strong talent force has become an urgent task for the country. The need to develop talent in key areas requires the emergence of breakthrough policies to attract, train, and utilize talent. The article proposes policy breakthrough solutions in training, attracting and utilizing talents to serve the development of science, technology, renovation and national digital transformation.

These policy breakthroughs help promote human resources in general and talent resources in particular to build a prosperous nation. The success of these policy breakthroughs is not only measured by scientific and technological achievements, but also reflected in the comprehensive economic, cultural, and social development of the country ■

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● Endnotes:

(1) Resolution No. 57-NQ/TW dated December 22, 2024, of the Politburo on breakthroughs in science, technology, renovation, and national digital transformation, <https://tulieuvankien.dangcongsan.vn>.