

# Blowing the Clarion Call of “New Infrastructure” and Training Smart Construction Talents

Xianyan Luo

Guangxi Polytechnic of Construction, Nanning 530007, Guangxi, China.

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**Abstract:** This paper expounds the transformation and upgrading measures of digitization, industrialization and intelligence for the construction industry to cope with the coming of the era of “new infrastructure construction” from three aspects: the adjustment direction of talent cultivation in the traditional construction industry, the analysis of the convergence point of professional mass production and education, and the reform of teachers’ teaching materials and methods.

**Keywords:** Construction Industry Transformation and Upgrading; New Infrastructure; Talent Training

With the vigorous advancement and development of new infrastructure, the demand for high-tech jobs and talents in the construction industry will increase further. For example, BIM application engineers and assembly engineer positions in the construction industry will increase sharply in the new infrastructure era. Industry academies should base themselves on the “new infrastructure”, create a high-level professional group of “smart construction”, and promote the progressive transformation of the training of professional technical skills from traditional types to digital construction and smart construction.

## 1. Look forward to the “new infrastructure” era, aim at the transformation and upgrading of the traditional construction industry, the adjustment direction of talent training in industry academies

The essence of “new infrastructure” is the infrastructure of information digitization, and the corresponding “old infrastructure” traditional construction industry is transforming and upgrading to modern industrialization under this background. “Smart construction” is an important direction and colleges and there is an urgent need to accelerate the integration of universities and the construction industry to cultivate new-type construction industry compound technical and technical talents for the development of emerging industries.

### 1.1 Face the transformation and upgrading of the construction industry, grasp the new opportunities for the development of the professional group of industry colleges

With the advent of the “new infrastructure” era, new technologies such as big data, construction digitization, cloud computing, and artificial intelligence are gradually being applied in the construction industry. In the future transformation and upgrading of the construction industry, there is an important field of smart construction.

### 1.2 Preemptively lay out, strengthen professional characteristics, and define the core connotation of high-level professional group construction

Take the “BIM + prefabricated + 5G” technology field as a breakthrough point for professional and characteristic layout, boost the overall program of the transformation and upgrading of the construction industry’s “new infrastructure” era.

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## **2. Focus on “new infrastructure” to build a smart construction industry college, and find a high-level professional group, industry and education integration point**

The digitization, informatization, and intelligence of “new infrastructure” are common areas for the development of high-level professional groups and the transformation and upgrading of the construction industry. High-level professional groups are the foundation and integration point of the school’s industry-education integration and school-enterprise cooperation, while the industrial college is the meeting point of the industrial chain and the talent chain. Use BIM, assembly and other technical fields as breakthrough points to lead the quality improvement of professional groups.

### **2.1 Set up the framework of the “smart construction” industrial academy to build a high-level professional group with industry characteristics in the new era**

Relying on high-level professional groups, build a smart construction industry college, realize the integration of production and education, and complete the convergence of the talent chain, industrial chain, and innovation chain.

### **2.2 Rely on smart construction industry college, conduct high-level professional group construction practice, exploration and innovation. Bring together resources from all parties to implement the “seven commons”**

Take the smart construction industry college as the carrier, and practice the “seven commons” of the school and the enterprise, that is, the school and the enterprise jointly research the setting of majors, jointly design the talent training plan, jointly develop the curriculum, jointly develop the teaching materials, jointly form the teaching team, and jointly build the practical training internship platform and jointly develop quality standards for talent training.

## **3. Based on the “new infrastructure” to carry out the “three education reforms” and explore new ways to cultivate talents with smart construction skills**

### **3.1 Based on the new infrastructure, develop new loose-leaf textbooks and the construction of teaching resources to solve the problem of what to teach**

The development of loose-leaf textbooks is achieved through three aspects of: First, the content, the second, the use, and the third, the form. According to the characteristics of loose-leaf textbooks, realize the organic connection between curriculum teaching content and professional positions, and on this basis, carry out online curriculum construction.

### **3.2 Based on new infrastructure, build smart classrooms, research new teaching methods, and solve the problem of “how to teach”**

Integrate artificial intelligence technology into classroom teaching, explore the construction of smart classrooms, and widely apply online and offline hybrid teaching methods. Realize informatization, digitalization and diversification of teaching methods. Co-build artificial intelligence colleges and vigorously develop smart classroom construction. Use the 5G platform, artificial intelligence, Internet of things, big data processing technology, cloud computing technology and mobile Internet to serve professional groups and build an intelligent teaching platform.

### **3.3 Based on the new infrastructure, build a national vocational education teacher teaching team to solve the problem of who will teach**

Firstly, technology takes the media project as the carrier to establish a “dual teacher-type” teacher training model “1+1+N” through the operation and management model of industrial colleges. Secondly, speed up the standardization process of the “dual-teacher” structure of teacher team cooperation based on the direction of cooperation as the supporting standard, use the improvement of online courses and resources, and establish a teacher team collaboration community with outstanding institutions in the industry, through nationalization, industrialization and standardized norms realize the mutual training, co-training, exchange and sharing of teachers across regions, disciplines, and courses in the industry, education, and research ecosystem.

## **4. Conclusion**

As higher vocational colleges in traditional industries should give full play to their own characteristics and advantages, keep up with the pace of the times, and innovate in the direction of talent training and the integration of production and education at this historical turning point, and in teachers, teaching materials, and teaching methods. The reforms of teachers, textbooks, and teaching methods should be implemented, they should work together to develop high-level professional groups and cultivate talents with interdisciplinary technical skills.

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