

# People-to-People and Cultural Exchanges in Engineering Technology Among the Belt and Road Initiative Participants and the Status of Enterprises Participation

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**Abstract:** This paper introduces the concept of people-to-people and cultural exchanges in the engineering technology field, and the significance of enterprises' participation in them. It reveals that substantial participation by key enterprises in the Belt and Road Initiative has been achieved through the employee exchange between China and the world, cultural exchange, and public welfare activities. However, there are still problems such as the failure to form a regular and sustainable exchange mechanism for people-to-people and cultural exchanges in the engineering technology field, and the failure of the exchanges to effectively interact among multi-agents' platforms. Therefore, we propose a bilateral and multilateral mixed exchange mechanism with government-led and multi-agents' participation, integrating platform resources among multi-agents, strengthening the promotion of China's engineering standards, and improving China's engineering standards. These proposals provide guidance for encouraging Chinese enterprises to expand their participation in the people-to-people and cultural exchanges in engineering technology in the Belt and Road Initiative.

**Keywords:** Belt and Road; people-to-people and cultural exchanges; engineering science and technology; enterprises

## 1 Introduction

Interconnection, production capacity cooperation, and people-to-people and cultural exchanges are the three pillars of the Belt and Road initiative (B&R) being conducted by China and participating countries and regions. The B&R prioritizes the interconnection of infrastructure including highways, railways, ports, and pipelines of oil and gas. The enthusiasm for Chinese enterprises to participate in the B&R has been rising since its announcement four years ago. From engineering projects construction to international investments and mergers, enterprises are accelerating their participation in the B&R. In 2017, Chinese enterprises signed 7217 new contracts for engineering projects with 61 countries. The contracts had a total value of US\$144.32 billion, accounting for 54.4% of China's foreign contracted projects in the period. This has increased by 14.5% on the previous year, with a turnover of US\$85.53 billion, accounting for 50.7% of contracted projects in the same period, increasing by 12.6% on the previous year. This achievement was not easy. From the suspension of the Myanmar Myitsone Hydropower Project to the postponement of the Malaysian high-speed rail project, the overseas expansions of Chinese projects have been

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strongly resisted. Insufficient or unqualified people-to-people and cultural exchanges at project locations is one of the greatest causes of project postponements and setbacks.

People-to-people and cultural exchanges are the “infrastructure” for deepening international relationships and accelerating friendships between cultures [1]. They are an important bridge for connecting people from different countries and fostering in-depth communication. At the thirty-seventh meeting of the Central Leading Group for Comprehensively Deepening Reforms in 2017, China General Secretary Xi Jinping emphasized that the concept of people-to-people and cultural exchanges should be implemented in all fields of foreign exchange. As the intellectual foundation promoting B&R infrastructure interconnection, the engineering technology field should embrace the concept of people-to-people and cultural exchanges to shape the regional engineering technology standards, promote the establishment of a national brand and image, and obtain regional political support.

## 2 People-to-people and cultural exchanges in engineering technology of the B&R

Engineering technology is an essential component of science and technology. People employ it to understand and use nature for practical activities. Of the science and technology specialties, it has the closest connection to, and the most direct and significant effects on our economy and society. It also is critical to the process of transforming science and technology into real productive forces [2].

People-to-people and cultural exchanges in engineering technology (PCEE) allow the exchange of thoughts and values. As an innovative process where people both exploit and remake nature, engineering activities have both natural and social attributes, reflecting people’s goals and values [3]. Through engineering, people transform not only the objective reality of the world but also their subjective perception of it. Therefore, engineering reflects the unity of people’s subjective initiatives and objective laws. With the continuous development of engineering technology, the human value of modern engineering has gradually surpassed its instrumental reason value [4]. The materials that the engineering technology field needs to do its work are drawn from the environment, and at the same time, the engineering field adds value to it. If value is not added, engineering is meaningless [5]. People living in different economic, political, and social environments will value the pursuits of engineering technology differently. The direct purpose of PCEE is to reduce or eliminate the gap between these different parties.

The authors of this study view PCEE as the exchange of scientific and technological knowledge and values in the process of transforming or creating things. The PCEE of B&R contains three levels of exchange in the engineering technology field, people, ideas, and culture. Its purpose is to accelerate mutual understanding between people from China and B&R countries to reduce or eliminate thought gaps between the countries and ensure the smooth implementation of the engineering projects. This supports the recognition of regional culture, values, the Chinese national image and brand, and helps promote the legitimacy of the B&R.

The PCEE of B&R should include three complementary elements, people exchanges, thought exchanges, and cultural exchanges. The people exchange within PCEE has different structures that include people from government, enterprises, society, etc. The different structures determine the content and properties of a PCEE. Enterprise, a direct beneficiary from the PCEE of B&R, is the key focus of this paper.

## 3 The significance of enterprises participating in the PCEE of B&R

Enterprises are the most important entities for promoting the construction of B&R, and they are the most direct beneficiaries of PCEE.

### 3.1 Enterprises participating in the PCEE of B&R are essential components of public diplomacy

A transnational business has international influence, so it can practice public diplomacy [6]. In the process of participating in the PCEE of B&R, engineering technology enterprises not only connect people, but also facilitate the interconnection of entities involved in project construction. The realization of any great vision and the launch of any great work requires emotional respect and rapport from all parties involved. Therefore, enterprises must not only be capable of engineering project implementation, but also actively participate in PCEE. By doing this, enterprises can change the international public’s opinion of Chinese engineering enterprises and China’s engineering technology, obtain wide recognition from the international community, and obtain the understanding and support of other countries’ national interests and policies.

### 3.2 The survival and development of enterprises in the countries participating in the B&R require PCEE

As one of the primary participants in economic activities, transnational enterprises often become victims of criticism against China by the western public. Although they have made improvements, Chinese enterprises still lack a deep understanding of international market conventions and rules, and they are still unskilled in communicating with local governments while seeking support [7]. Chinese enterprises are even labeled by some supporters of the western supremacy ideology as neocolonialists in some oversea markets, resulting in negative repercussions to the development of their oversea businesses [8]. However, with the continuous development of national engineering technology and years of accumulated research, Chinese enterprises have mastered or created a great deal of advanced engineering knowledge and hold the intellectual property rights to their work. This gives them substantial competitive advantages in oversea project bids, but they need the help of PCEE for “going global” and “standing firm.”

### 3.3 Enterprises participating in PCEE are the internal requirements of telling “Chinese stories”

During the National Propaganda and Ideological Work Conference, General Secretary Xi Jinping said, “Tell Chinese stories well, spread Chinese voices well.” Chinese people and Chinese enterprises are the ones who can tell Chinese stories in the international community. Under the spotlight of the international arena, rapidly growing Chinese enterprises around the world are becoming essential material for “Chinese stories” that the world is paying attention to [6]. The “good stories” of enterprises’ transnational operations need to be spread through people-to-people and cultural exchanges. The projects Chinese engineering technology enterprises take on are usually related to sensitive areas such as energy, infrastructure, information technology, etc. From the inferior position of being labeled as “neocolonialists,” Chinese enterprises are easily misunderstood and often resisted. Facing this negative attitude, enterprises need to actively participate in PCEE, tell good “Chinese stories,” improve the image of enterprises and nation, and obtain the support of governments and people of B&R countries.

## 4 The status quo of enterprises participating in the PCEE of B&R

Based on the investigation and analysis of eleven key enterprises that conduct business in B&R countries, this paper summarizes the status quo of enterprises’ participation in the PCEE of B&R. They are the China Civil Engineering Construction Corporation, China Railway International Group, China Road & Bridge Corporation, CRRC Co., Ltd., China Railway Group Co., Ltd., China National Petroleum Corporation, China UnionPay Co., Ltd., ZTE Co., Ltd., Inspur Group, China Mobile Communications Group Co., Ltd., and the Haier Group.

For our investigation, we used a qualitative research method, the focus group discussion method. We invited managers of the eleven subject companies to a discussion, where we focused on the status quo and problems of PCEE and talent cultivation in B&R. We sorted the resulting data and found that issues related to “talent cultivation” are abundant, making them suitable for analysis with grounded theory, [9] and the issue of “people-to-people and cultural exchange” is more suitable for inductive analysis.

### 4.1 Spontaneously organizing Chinese and foreign employees exchange to promote communication

An important objective of PCEE is to promote communication between personnel, which is also an important means of public diplomacy. We found that the eleven subject companies all have employee exchange programs. The China Civil Engineering Construction Corporation, for example, pays substantial amounts of attention to localization strategies. They train their non-Chinese employees working in foreign countries in Chinese technology and culture, and arrange for groups of managers to take professional training in China. During the training period, apart from learning management knowledge, they visit developed areas in China to help them better understand Chinese engineering technology. This increases their willingness to communicate with China and diminishes their anxiety toward Chinese engineering technology capacities, making the standards kept by Chinese engineering technology more acceptable. Enterprises also send foreign employees to China for training and exchanging of cultural ideas through various foreign aid projects organized by the Ministry of Commerce of China. The training includes financial management, business management, commercial cultural integration, and ethnic cultural integration.

Chinese employees working abroad are facilitators of cultural exchange between China and foreign countries. They need to understand foreign languages and local cultural conventions to communicate with local employees and local people. In order to increase the mutual understanding between Chinese and foreign employees, ZTE has

organized activities like mandarin bridge and open day to promote communication. The China National Petroleum Corporation has a higher requirement for managers. They require their Chinese senior managers, including the Chinese general manager of their projects, to be able to negotiate with locals and communicate with foreign social organizations without an English interpreter. This ensures that all senior managers can communicate independently.

#### **4.2 Organizing Chinese-foreign cultural exchange activities to actively promote cultural interconnection**

Extensive cultural exchange activities can help foreigners better understand Chinese culture. In addition, Chinese individuals encounter the culture of foreigners. This helps reduce misunderstandings so the cultural gap can be eliminated, promoting the stable implementation of engineering projects. Our sample companies commonly held collective activities to celebrate traditional Chinese festivals and organized Chinese and foreign employees to watch Chinese films together. This enhances the Chinese employee's sense of belonging to the motherland, and deepens foreign employee's understanding of Chinese culture.

Some enterprises have unique ways of organizing cultural exchange activities. For example, China Railway International Group promoted China's high-speed railway engineering technology by hosting international exhibitions. In Thailand, Malaysia, and Singapore, they installed for long-term exhibitions in the central areas of downtowns (such as central railway stations) to introduce and explain China's high-speed rail. This practice is very effective at improving foreign impressions of China's high-speed rail technology. The Inspur Group and Haier Group created on-line communication platforms for engineering and scientific personnel from different countries by holding global engineering technology competitions and seminars. The Inspur Group sponsors the ongoing international ASC Supercomputing Contest. It also held the first Analyst Summit, attracting more than 30 analysts from the United States and the Asia Pacific to participate. The Haier Group has held high-end Sino-German seminars on smart manufacturing. Through this platform, it highlighted its mass customization model and became associated with the new trend of German Industry 4.0.

China Railway Group Co., Ltd. encourages Chinese employees to actively participate in different cultural and sports activities such as football and badminton matches. By encouraging employees to participate in such activities, the company promotes Chinese employees' comprehension of foreign culture, enhances the exchange of ideas, and deepens mutual understanding, thereby reducing conflicts between project implementation and technology promotion.

#### **4.3 Implementing public welfare to shape the excellent image of Chinese enterprises.**

For multinational enterprises, public welfare activity choices are not only important for the enterprise, but also the national image behind it [10]. In international trade, national and enterprise brands are closely related. If enterprises don't take economic and social responsibilities seriously overseas, they are likely to affect diplomatic relations or even cause a diplomatic crisis [8]. The Chinese employees from the enterprises in our sample are working hard to shape the image of Chinese companies. For example, the China Civil Engineering Construction Corporation and the China Road & Bridge Corporation stated that their Chinese employees have been cooperating with local communities to participate in public welfare activities such as building public activity venues and sports facilities, constructing schools and hospitals, and participating in local disaster relief. All of these have positively shaped the image of Chinese enterprises and have been widely recognized by the foreign governments and people in B&R participant countries. In addition, the China Road & Bridge Corporation provided funding for more than 300 international students to travel to China to study, and actively organized the activities of graduate alumni associations, which has positively impacted overseas brand shaping and business transactions. These activities demonstrate that Chinese companies have realized the importance of social responsibility while conducting business overseas.

#### **4.4 Actively learning local religious culture, laws and regulations, business rules**

When a Chinese company enters a foreign market, it faces various laws, regulations, religious cultures, and business rules that are substantially different from those in China. It is the responsibility of a "global enterprise citizen" to abide by these rules. When exploring international markets, they actively learn local religious cultures, laws, regulations, and business rules. For example, the China Mobile and China Civil Engineering Construction Corporations hired local people to manage local employees, set flexible working hours, and set the schedules of projects while taking into account the religious beliefs of local employees, thus reducing management conflicts. The

Inspur Group reported that in the early stages of exploring international markets, they were unfamiliar with the local employment system, which led to high research and labor costs, and even increased rents for housing. Now, these companies have experience in the operation of international business. They organize culture training and intend to strengthen cross-culture management and PCEE to assist in the successful implementation of their engineering projects.

## **5 The problems of enterprises participating in the PCEE of B&R**

### **5.1 Failure to form a normalized and sustainable cooperation mechanism of PCEE**

Usually, the government is the primary participant in PCEE, and participation by the private sector is low. At the government level, there are many countries participating in the B&R with different cultures and a large geographic span, and a comprehensive regular bilateral or multilateral leaders' meeting has not been formed. Also, there is no regular high-level meeting on PCEE. Therefore, the exchange activities at the macro level of government are limited. At the non-government level, there are also problems such as lack of normalized think tank seminars and exchanges of visits by non-governmental organizations. There is no multi-level, diversified, or multi-dimensional communication channel covering multiple fields.

### **5.2 Lack of effective interaction between multi-agents' platforms**

The problem most cited by our sample enterprises was that there are few platforms for PCEE. However, research finds that government, universities, and some NGOs have established many exchange platforms for B&R. By our last incomplete count, there are currently more than twenty alliances related to B&R engineering sponsored by universities and research institutions. They involve most fields of engineering, but few enterprises have participated in them. What's more, with the rapid development of Chinese engineering technology, the demands for engineering talent is ever-growing. There are also mismatches between the current engineering talent pool and market needs, especially for engineers with global vision and global competency [11]. However, due to information asymmetry, there is no effective interaction between multi-agents' platforms, and existing platforms have not been fully utilized.

### **5.3 Enterprises are weak in promoting Chinese engineering standards**

The biggest problem enterprises are facing in participating in the PCEE of B&R is the difficulty in promoting the Chinese engineering standards. This is mainly because developed nations such as the European countries and the United States have profoundly affected the technology standards of developing countries. By taking advantage of their comprehensive national powers and extensive use of their standard technology language, the US and European standards have become the preferred engineering construction standards [12]. What's more, some local project leaders in the participant countries have western educations, and they tend to adopt European and US standards [13]. Due to the low degree of internationalization and lack of English versions that can be easily read by the international community, China's engineering technology standards have not been widely accepted by the international community. Furthermore, because of the cultural and linguistic differences and the lack of broadly educated talent, the international competence of Chinese enterprises in terms of project design, consulting, and management is weak, and their global market share is small [14].

## **6 Solutions for the improvement of enterprises participating in the PCEE of B&R**

### **6.1 Forming a government-led bilateral and multilateral mixed exchange mechanism with multi-agents participation**

The backing of established institutions provides the foundation for the establishment of an exchange mechanism. Therefore, the government should play a leading role in the establishment of the exchange mechanisms of PCEE, and actively establish institutional guarantees.

At present, China's PCEE with neighboring countries has made rapid progress in terms of mechanism construction, capital investment, and field expansion, etc. However, there are still problems such as mismatches of exchange subjects and objects, and insufficient personnel and financial input [15]. As of September 2017, China had signed B&R cooperation documents with 74 countries and international organizations. These agreements cover areas

such as strategy and policy connection, economic and trade cooperation, science and education, culture and health, and the mutual recognition of standards. PCEE contains complex and diverse content that covers all the fields of the cooperation documents. Therefore, the government should continue playing a leading role in international people-to-people and cultural exchanges, and combine the features of engineering technology to create the distinctive mechanism of the PCEE of B&R. Moreover, the B&R involves many countries with significant cultural differences and complex political environments, which makes the comprehensive establishment of a bilateral exchange mechanism a long-term project. Therefore, multilateral exchange mechanisms must work and interact with bilateral exchange mechanisms to contribute to the PCEE of B&R.

### 6.2 Integrating the platform resources of multiple agents

The diversified people-to-people and cultural exchange platforms have the potential to bring together the efforts of governments, universities, and non-governmental organizations to promote the PCEE of B&R. The current platforms lack effective integration management, so the platforms are self-governing, resulting in system failure and failure to give full play to joint efforts. The government should play a leading role in integrating the resources of multi-agents' platforms. The government should compile a catalog of existing platforms to help enterprises learn about them, overcoming communication problems caused by information asymmetry. At the same time, the government must actively create new platforms. As vital think tank and talent training institutions, universities should get actively involved in PCEE. Enterprises should actively seek or create platforms for communicating on different subjects based on their own needs, and actively use external intellectual resources to achieve multi-party exchange and learning. Non-governmental organizations should also play a coordinating role and become an intermediary force between the various platforms.

### 6.3 Strengthening the public recognition of China's engineering standards and improving the internal system of engineering standards

Internationalizing China's standards is important for shaping its national image, enhancing its global discourse power, and enhancing China's international prestige [16]. Breaking the long-term monopoly of the engineering standards market by European countries and the United States requires the Chinese government to publicize China's engineering standards and engineering culture at the national level. Although China has issued the *Action Plan on Belt and Road Standard Connectivity (2018–2020)* twice, up to now the globalization of Chinese standards has been hampered by insufficient domestic preparation and international acclimatization [17]. Therefore, the government needs to strengthen the promotion of Chinese engineering culture and the construction of Chinese standards abroad. To accomplish this, China should give a voice to Chinese engineering standards and publicize Chinese engineering culture through the meetings of the Shanghai Cooperation Organization and the China and ASEAN Free Trade Area. Second, priority cooperation in foreign aid projects, funds, and project support should be given to the countries (or regions) that accept Chinese engineering standards. Third, the government should continue promoting the official translation and publication of the "China standard," helping make the different versions of the "China standard" more comprehensive and systematic [16]. Apart from the lack of national publicity, the promotion of China's engineering standards by enterprises is inefficient because China's engineering standards are not highly systematic, and the documentation explaining its principles is insufficient [18]. Therefore, the quality of China's engineering standards needs to be strengthened, and China's engineering standards system needs to be improved.

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