

Research on China's "Go Global" Railway Strategy

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Abstract: This paper analyzes the opportunities and challenges associated with China's "Go Global" railway strategy; it proposes the guiding ideology, basic principles, and strategic targets corresponding to it. Based on the different characteristics of neighboring countries, the countries along the "Belt and Road," African and Latin American countries, European countries, and the United States, as well as cooperation in different equipment, the overall outline of China's "Go Global" railway strategy is revealed. Five strategies—consulting given priority, cooperation and alliance, technological innovation, local operation, and building the China's railway brand—are proposed. Finally, some policy measures and suggestions, such as top-level design, overseas consulting, financial support, risk prevention and control, international influence, and talent training, are recommended.

Keywords: China's "Go Global" railway strategy; railway market demand; market choice

1 Introduction

Since 2000, China's railway industry has made brilliant achievements. The technological innovations made in high-speed, plateau, and heavy haul railways mark the leading status of China's railway industry in the world. China's railway industry has developed a complete set of engineering technologies, as well as, a technical standard system, applicable to various environments. It has also built a whole industrial chain from the initial planning, consulting, investment, financing, design, construction, equipment manufacturing, operation, and maintenance to education and training. Relying on such a solid foundation, China's "Go Global" railway strategy has made remarkable accomplishments in some countries and areas.

As the "Belt and Road" Initiative goes further, China's railway industry is facing new situations and demands, while it goes global. It has become an urgent need to research on and establish a "Go Global" strategy. In 2015, the Chinese Academy of Engineering initiated the "Research on China's 'Go Global' Railway

Strategy" project. Two years later, seven research subjects (ten special topics) were completed. Guided by theories like the development economics, comparative economics, competitiveness evaluation, and international strategy, we integrated the theoretical research with empirical investigation and research by means of literature research, specialist consulting, investigation, and research on special topics. Furthermore, analyzed and researched the significance of China's "Go Global" railway strategy, its associated opportunities and challenges, and the global railway market demand. To break the barriers and obstacles in the course of globalizing China's railway industry, we researched globalization of railway technical standards, investment/financing modes, construction and operations modes, and fulfillment of international railway talents, among others; determined the guiding ideology, basic principles, strategic targets, and overall layout for China's railway industry to go global; and put forward the implementation strategy, guarantee measures, and suggested policies. The research results are important for top-level design and promotion of China's "Go Global" railway strategy.

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2 Opportunities and challenges associated with China's "Go Global" railway strategy

The requirement for sustainable development and hi-tech achievements are new motive powers for growth of the railway industry. Many countries tried to cope with financial crises and promote long-term competitiveness by enhancing construction of the green railway network. Now, countries are adjusting their transport development strategies or implementing new ones, formulating railway development plans, and investing more in railway construction. According to prediction and analysis based on the collected regional railway planning data, in the next 20–25 years, 1.2×10^5 – 1.5×10^5 km railways are expected to be built, including 1.5×10^4 – 3×10^4 km high-speed railways (excluding China), with an estimated investment amount of USD 600–1000 billion, with the potential demand for urban rail transport is about 2×10^4 km. Besides, there are large demands for new conventional railways and upgrading existing ones. In the next five years, the demand for rail transport equipment will grow at an average annual growth of 2.2%, which provides great opportunities for China's railway to go global (Table 1).

In the process of economic globalization, regional economic integration sets forth a new requirement for construction of infrastructure, especially the transport industry. Speeding up construction of transport infrastructure like railways has become an important means for facilitating economic development, providing more employment opportunities, and accelerating pace of urbanization. Facing problems like resources consumption, environmental pollution, and climate change arising in the economic and social development, many countries have to attach importance to the railway transport characterized by low carbon emission and environmental friendliness. An increasing number of countries give priority to railway development. This is a good opportunity for the rail transit industry to carry out wide cooperation. By accelerating China's railway's globalization pace, we

can promote the capacity cooperation between China and other countries; facilitate structural adjustment, quality and efficiency promotion, transformation and upgrading of our economy; foster new economic development spaces and areas; and build a new opening-up model. In addition, it can accelerate the Belt and Road construction, speed up economic development of the host countries, and thus, bring mutual benefits and win-win results.

The international railway market demand provides a golden opportunity for China's railway to go global. Meanwhile, it brings severe challenges: ① higher international geopolitical risks and more serious unconventional security threats; ② market access and technology barriers set by many countries under the influence of investment protectionism; ③ fierce international railway market competition due to prejudice in favor of enterprises from developed countries. Moreover, China's railway industry still has some issues imminent to be addressed: ① the top-level design and coordination systems of governmental authorities need to be promoted; ② enterprises' international competitiveness shall be enhanced; ③ there is a serious lack of international professionals and well-rounded railway talents; ④ railway enterprises are weak in risk management, a lack of legal awareness exists, and competition is disordered. In the research on China's "Go Global" railway strategy, we shall insist on goal and problem orientation, embrace challenges, and strive for more progress.

3 Demands of China's "Go Global" railway strategy

3.1 Guiding ideology

- (1) Adhere to the new concepts, ideology, and strategies for state governance in all aspects;
- (2) Set up and implement the development concept that ensures innovation, coordination, environmental friendliness, opening, and shared benefits;

Table 1. Railway planning and investments in different regions (excluding China)

Region	Planning mileage (km)		Estimated investment amount (USD 100 million)	
	Railway	High-speed railway	Railway	High-speed railway
Southeast Asia	4 862	680	689	97
South Asia	23 194	500	129	3
Northeast Asia	3 570	1 033	103	30
Central Asia	18 761	—	19	—
West Asia	16 183	2 000	1 174	150
Africa	16 363	3 090	615	116
Europe	21 894	6 370	1 433	417
North America	2 863	1 232	988	425
Latin America	16 679	—	529	—
Oceania	3 448	1 748	814	413
Total	127 817	16 653	6 493	1 651

Data from the research report on China's "Go Global" railway market demands.

(3) Focus on the Belt and Road Initiative; integrate advantages of China's railway industry with the overseas development demands;

(4) Facilitate pragmatic cooperation to achieve mutual benefits and win-win results;

(5) Promote all-around output of the value chain including the railway engineering design, construction, equipment manufacturing, operation, and maintenance, and so on; and

(6) Improve railway enterprises' international operating ability and core competitiveness; open up new prospects for the railway industry to go global.

To meet the demands of mutual benefits, win-win results, and shared development through negotiation and collaboration, China's railway enterprises shall positively cooperate with host countries to realize harmonization of plans, demands, interests, and corridors.

3.2 Basic principles

The enterprises shall play a dominant role, while governments play a guiding role. Oriented by market rules, the market shall play its decisive role in allocation of resources and motivating railway enterprises. Meanwhile, governments shall guide railway enterprises to go global by using political, diplomatic, economic, and financial means, providing support policies, and creating favorable environment.

Advocate overall coordination and implementation in stages. Make long-term plans and overall coordination based on host countries' demands for economic growth and industrial transformation. Determine the short-, medium-, and long-term targets according to the geospatial relationship; determine development foundation, technical standard interfacing, and cooperation and transaction costs, and realize the targets step by step.

Apply different strategies in different contexts and make critical breakthroughs. Carry out in-depth investigations, and take into overall consideration host countries' economic development stages and comprehensive transport plans. Develop pertinent strategies for different areas, such as developed and underdeveloped, and for projects of different natures, such as new railway and reconstruction projects. Furthermore, connect these strategies with the Belt and Road strategy, as well as the national diplomatic strategy. Focus on major areas and projects, and make critical breakthroughs for demonstration.

Actively move forward and avoid risks. Keep our strategic focus, and help enterprises in their globalization pace and sustainable development. Strengthen the awareness of risks, and promote the ability of risk identification and control, especially capacity in coping with and controlling politics, religions, and contract risks.

Seek for mutual benefits, cooperation, and collaboration, and win-win results. Abide by host countries' laws, respect their religions and cultures, live up to social responsibilities of enterprises, and build harmonious construction environment. Carry

out capacity cooperation, pursue mutual benefits and win-win results, pay attention to interests and concerns of host countries, and bring benefits to their people.

3.3 Strategic targets

By 2020, establish a coordination mechanism and policy system at the state level to support the railway industry, as well as strengthen the cooperation system and risk prevention system for the railway industry, in order to go global. Furthermore, make initial success in making Chinese railway technical standards international, and achieve significant progress and demonstration effect in overseas railway projects, such as the China–Laos Railway, Jakarta–Bandung High Speed Railway, and Hungary–Serbia Railway. Build leading railway design and construction enterprises, as well as leading railway equipment manufacturers in the world. Shift overseas railway projects to an integration mode of construction and operation, and sign new railway project contracts valued at more than USD 80 billion in five years. Increase our rail transport equipment share in the international market to 20 %, and sign new contracts valued at more than USD 30 billion in five years. Finally, operate more than 5 000 China Railway Express trains each year.

By 2030, the “Go Global” effort will evolve into a comprehensive level, from developing countries to developed ones, and complete our global layout. It would form a complete industrial chain, and greatly promote our share in the international railway market. Moreover, our railway construction enterprises, such as China Railway Group Limited and China Railway Construction Corporation Limited, are ranked among the global top 10 contractors; and China Railway Rolling Stock Corporation among the global top 100 enterprises.

4 Overall layout of China's “Go Global” railway strategy

Relying on comprehensive advantages of China's railway industry in design, construction, equipment supply, operation, maintenance, and financing, as well as surrounding the international economic cooperation corridor under Belt and Road Framework, build six major railway corridors. These would include, China–Indochina Peninsula Railway, Bangladesh–China–India–Myanmar Railway, China–Pakistan Railway, China–Central Asia–West Asia Railway, China–Central Asia–Europe Railway, China–Mongolia–Russia Railway in neighboring countries, and along the Belt and Road in order to achieve interconnection of railways. In the overall layout of China's “Go Global” railway strategy, five strategic keys are underlined.

4.1 Interoperability with neighboring countries

Neighboring countries are key areas for railway interoperability. We shall ensure international railway corridors act as

pioneers in the economic cooperation corridors along the lines by means of interfacing with railway plans of neighboring countries, and pushing forward construction of railways and frontier ports for interconnection. Currently, we shall positively accelerate construction of China–Indochina Peninsula Railway, China–Laos Railway, and the Malaysian Railway; make sufficient commencement preparation for China–Thailand Railway and Pakistan Railway Main Line-1 Upgrading; and respond to the competitive bidding of Kuala Lumpur–Singapore High Speed Railway project. Meanwhile, we shall do preliminary work for China–Myanmar Railway, China–Pakistan Railway, China–Mongolia–Russia Railway, and China–Kyrgyzstan–Uzbekistan Railway. In addition, we shall improve our existing railway port facilities and supporting systems, and build new railway ports.

4.2 Implement Projects in Countries along the Belt and Road

On the basis of the related railways within the planned economic corridors under the Belt and Road Initiative framework, and relying on central cities along the lines and the cooperation platform of major economic and industrial parks, we shall build railways in missing sections within the corridors, and upgrade the existing lines to form an efficient and unimpeded international railway through transport network. Moreover, we shall cooperate with related countries, accelerate the electrification of Teheran–Mashhad¹ Railway Iran and construction of Jakarta–Bandung High Speed Railway in Indonesia; commence the construction of Hungary–Serbia Railway; push forward cooperation in Moscow–Kazan High-Speed Railway project in Russia; do preliminary work for Teheran–Esfahan High Speed Railway in Iran, Delhi–Chennai High-Speed Railway in India, East–West High-Speed Railway in Turkey, the China–Kyrgyzstan–Tajikistan–Afghanistan–Iran Railway Projects; and boost upgrading of Chennai–Bangalore–Mysore Railway in India.

4.3 Enhance the strategic cooperation with Africa and Latin America

To achieve independent sustainable development, Africa and Latin America are accelerating their industrialization pace, and trying to break bottlenecks of lagged infrastructure construction. African countries attach much importance to railway network development. The African Union passed the *Programme for Infrastructure Development in Africa (PIDA)* in January 2012, under which four transversal and six longitudinal railways are planned. In December 2015, at the Johannesburg Summit of the Forum on China–Africa Cooperation, it was proposed to jointly formulate and implement *China–Africa Railway Cooperation Action Plan (2016–2020)* to promote the construction of railway networks in Africa, including Nairobi–Naivasha–Malaba Railway in Kenya, the 10th of Ramadan Suburban Railway in Egypt,

upgrading of Tanzania–Zambia Railway, high-speed railway in Morocco, and the Coastal Railway in Nigeria. Meanwhile, Latin American countries formulated the development plan to promote integration and interconnection of railways in South America. We shall accelerate the upgrading of Belgrano Freight Railway in Argentina, and carry out a study to push ahead with construction of the Brazil–Peru Twin Ocean Railroad, Argentina–Chile Twin Ocean Tunnel, Brazil Freight Railway, Lim Metro Line 3 in Peru, and the rail transport systems in Argentina and Costa Rica.

4.4 Explore opportunities in European and American developed regions

Seizing the opportunity that some European and American countries are pushing forward their high-speed railways construction, we shall actively carry out the preliminary work for railway projects that meet European and American standards; provide customized and adaptive solutions; and pay attention to low carbon emission, energy saving, and environmental protection to satisfy the demands of European and American high-end markets. Currently, we shall focus on cooperation in projects of Rail Baltic and high-speed railways in the UK and Sweden, and then, follow up projects like the California High-Speed Rail and other high-speed railways in the USA; Ontario high-speed railway in Canada; and Sydney Metro and Melbourne Metro in Australia.

4.5 Promote cooperation in equipment manufacturing

China's rail transport equipment is going global gradually from developing countries to developed ones. Our exported products are diversified and endowed with more unique features. Some Chinese rail transport equipment manufacturers have become world leaders that run business in many countries and provide high-end equipment system solutions. First, we shall further develop the Southeast Asian market in an intensive manner. We shall anchor into the local culture, community, and economy as localized enterprises. We then seek integration of technical development, manufacturing, and service of international large companies and high-end brands. Second, we shall consolidate the Austrian market. We develop the market by establishing development and manufacturing bases through joint venture cooperation. Third, we shall develop the European and American markets. We shall manage to achieve coordinated development of export trade, maintenance service, and overseas investment with flexible methods, such as cooperation, capital operation, and diversification. We then shall establish complete overseas sales and services networks. Fourth, we shall trace potential markets of Africa, South Asia, Latin America, Russia, and Commonwealth of Independent States. Currently, we shall focus on the projects including Kuala Lumpur–Singapore High Speed Railway, high-speed railway in Indonesia, and Nong

Khai–Bangkok Railway in Thailand, and build manufacturing centers in ASEAN countries. In addition, we shall accelerate the delivery of Boston and Chicago (USA) metro vehicles and completion of the rolling stock manufacturing base in Massachusetts (USA). We shall push ahead with establishment of rail transport equipment manufacturing bases in Brazil, Argentina, and other countries.

5 “Go Global” implementation strategy of China’s railway

To achieve the above strategic objective and layout, “five strategies”—driving by consultation, cooperative alliance, technological innovation, local operation, and China’s railway brand—shall be implemented for the China’s “Go Global” railway strategy (Fig. 1).

5.1 Consultation-first strategy

In line with the host country’s strategy and planning, consultation shall be given priority. Design and consultation shall play a leading role in project construction to make China’s “Go Global” railway strategy of gradually transferring to the export of a whole industrial chain with leading design, technology-driven, construction, equipment and manufacturing, and operation and maintenance. The major form of the “consultation first” strategy is to perform development planning and strategic study, provide professional consulting services, and strive for general contracting for possible railway projects, including the design.

(1) Strengthen consultation and design capacity to improve international competitiveness: It is necessary to facilitate consultation and design enterprise in order to greatly improve tech-

nical ability, improve operation, management level and business development ability, and establish a professional team with high expertise and rich business experience. Overseas layout of consultation and design agency shall be improved to make consultation and design enterprise in line with international standards in terms of professional ability, operation mechanism, and brand management.

(2) Implement regional development and planning study vigorously: We shall collect information through multiple channels, and actively participate in railway development planning and strategic study of host countries. We shall also enter the host country’s market through consultation and design, and look for and reserve target items. Next, we shall carry out deep analysis on resources, environment, geographical relationship, and industry and policy of project site; technology, equipment, design, construction, and operation shall be provided with overall support. Excellent design and consultation services will facilitate the whole industrial chain output involving investigation, supervision, project management, construction, equipment manufacturing, and operation and maintenance.

(3) We shall efficiently execute project consultation, and design appropriate feasibility studies for projects like the Moscow–Kazan High-Speed Railway, Brazil–Peru Twin Ocean Railroad, Kuala Lumpur–Singapore High Speed Rail, and high-speed rail in India. Market research and communication with government departments shall be strengthened. Host country’s demand shall be deeply understood. Planning, survey, and design shall be promoted. Made-to-measure schemes shall be provided. Technical scheme comparison and selection shall be deepened, and project financing plan shall be implemented.

5.2 Cooperative alliance strategy

Establishment of cooperative alliance may make an enterprise utilize its existing critical resources or core competence, and integrate them with other enterprises’ resources. This would allow it to effectively utilize the dual advantage of organization and market in order to complement each other’s advantages, improve international competitiveness, and create greater value. Cooperative alliances are good for breaking trade barriers and integrating into the host country’s market rapidly, sharing risk, cultivating high-quality engineering management personnel, and improving internationalization level of Chinese enterprises. A cooperative alliance includes horizontal, vertical, bank–enterprise, and multinational enterprise type of alliances.

(1) Establish industry alliance targeting international market: It is required in order to facilitate implementation of deep strategic cooperation among Chinese enterprises, establish globalization industry alliance, avoid vicious competition within the same industry, improve coordination and cooperation ability of enterprises, form a joint effort for participating in global resources allocation, and promote powerful combination of integrated pro-



Fig. 1. China’s “Go Global” railway implementation strategy.

jects of resource development and infrastructure development. We shall establish effective organizational structure, stipulate corresponding regulations and rules, define alliance target, establish common value orientation, and construct a trust mechanism.

(2) Strengthen cooperation with foreign enterprises and develop new market: Strategic cooperation of infrastructure construction between Chinese enterprises and relevant enterprises in such countries and regions as Europe, America, Canada, Australia, Japan, and Korea shall be promoted. We shall cultivate strategic cooperation partner, and play an active role in breaking technical barriers, government negotiation, solving market disputes, and creating a favorable situation of risk-sharing, mutual benefits, and win-win strategies. Attention shall be paid to promoting China and Germany to jointly develop Asia, Africa, and Latin America's high-speed railway market, as well as promoting them to jointly participate in Turkey's high-speed railway project. Local market shall be developed by utilizing enterprise advantage of the host country in order to develop a third-party market.

(3) Acquire excellent overseas companies and improve internationalization level: According to development strategy and business development demand, overseas market development process of Chinese enterprises is shortened by purchasing overseas excellent enterprises with key market production and operation core resources, especially international consultation enterprises and research institutes with advanced technology. This way, the weaknesses of Chinese enterprises shall be overcome, and the internationalization level of Chinese railway enterprises shall be enhanced.

5.3 Technological innovation strategy

Strong technological innovation capacity is the fundamental element for "Go Global" enterprise strategy. In order to keep long-term competitive advantage in the international market, China's railway shall develop in an environmental-friendly and intelligent way, create unique core competence, participate in global railway industry division of work and adjustment, and occupy a good position in the value chain. It is required to construct long-term competitive advantage of enterprise by continuous technological innovation and standard internationalization, and allow enterprises to obtain the impetus for sustainable development.

(1) Promote core innovation capacity of railway enterprise: Seize innovation opportunity in the new industry revolution, and explore new development potential. Increase investment and human input for technical innovation; establish independent intellectual property of core technology and high-tech talent team adapting to international competition; promote its status and discourse power in the global innovation activities; maintain the leading position in terms of technology in the global railway market; and achieve transformation from Made in China to Cre-

ated in China, Chinese speed to Chinese quality, and Chinese product to Chinese brand.

(2) Deploy major and key technological innovation project. Deepen core technology independent innovation in key areas, and carry out advanced R&D to strengthen technical reserve. Promote a batch of key technological innovation projects greatly; construct a product system based on high technology and adapting to different countries and market demands; improve safety and high efficiency of products; and improve low-carbon, energy-saving, and green and environmental performance. Enhance the operation safety, as well as energy-saving and environmental protection, technologies of high-speed railway trains. Strengthen the R&D of key technologies and equipment for China-Russia high-speed railway train running at 400km/h, high-speed and moderate speed Maglev train, and high-speed freight train to hold a high ground in the global high-speed railway technology.

(3) Accelerate the pace of railway standard internationalization: Efficiently execute the fundamental work of Chinese standard internationalization. Compare and analyze the difference and equivalence between Chinese standards and advanced international standards, and actively participate in international standardization activities. Strengthen communication with various international railway organizations. Moreover, adapt to international requirements for railway technical standards; study and verify standard system led by functional demand. Improve compatibility and extensibility of Chinese railway technical standard, and promote the application of Chinese railway technical standard depending on international project. Promote the direct application and integration of Chinese railway standard.

5.4 Localization operation strategy

The core of localization is to have global thought and implement local operation. Fully consider the national condition and demand of host countries; fully utilize natural resources, social resources, and supply capacity of host countries to make a contribution to their economic and social development. This is considered a major trend for development of enterprise internationalization, and the common choice for "Go Global" strategy of enterprises. The local operation strategy will facilitate the establishment of railway and relevant industries of host countries, and achieve joint negotiation, joint construction, and sharing during the implementation of railway projects.

(1) Specify local operation direction and field: According to specific conditions of host countries, the local industry to be developed shall be determined. The target market status related to railway industry shall be deeply analyzed; and local industry field and direction shall be determined. The added value production chain will then be established, followed by stipulation of industry layout and framework. Start from low-end implementation path, and gradually develop toward middle- to high-end (Fig. 2). Fully utilize the resources of the host country in order to

achieve local operation by employing local technical experts and consultants, registering joint ventures locally, establishing subsidiaries and technology R&D centers, manufacturing maintenance bases, and setting construction materials and components manufacturing plants.

(2) Implement local operation in light of local conditions: For different countries and regions, the whole industrial chain market that involves railway design, construction, equipment, and operation shall be subdivided. In different markets like Africa, Southeast Asia, South America, Central Asia, Europe, and North America, different railway industry development strategies shall be adopted. Advantages of both parties shall be fully played to reduce operation barriers caused by political and cultural conflicts, allowing mutual benefit.

(3) Actively perform enterprise's social responsibility: Guarantee project quality in all aspects; achieve project objective; and embody economic, legal, social, and environmental protection responsibilities of enterprise. Play out the advantages of the enterprise, carry out public benefit activities, construct a harmonious construction environment, improve the international image of Chinese enterprises, and provide a good external public opinion environment for market development.

5.5 China's railway brand strategy

Famous brands can create a unique competitive advantage and more outflow profit in the international market. The China's railway brand is the overall embodiment of the whole industrial chain in terms of railway design, construction, and equipment; it is the carrier of enterprise spirit, quality, value, scale, technol-

ogy, and management of China's railway. Thus, it constitutes intangible assets comprising the unique market image of railway enterprises. The implementation of China's railway brand strategy can promote the popularity and credibility of China's railway, and create unique competitive advantages.

(1) Plan brand construction in all aspects: Efficiently execute brand construction and planning, find the right market positioning, and create brand core value. Furthermore, promote the accumulation and expansion of brand value; highlight the value characteristics of a green, low-carbon, safe, reliable, economical, and practical concept that benefits society, as well as guarantees livelihood and sharing, to highlight the mutually beneficial presence of the China's railway brand. Thus, widely promote the recognition of China's railway brand overseas and its long-lasting position in the market. Moreover, establish its evaluation standard system in terms of tangible assets, intangible assets, quality guarantee, service function, and technological innovation. Finally, build brand culture, strengthen brand promotion, and facilitate the China's railway to head for the world.

(2) Create railway excellent demonstration project: To expand the publicity and demonstration effect of China's railway brand, projects like China–Laos railway, Jakarta–Bandung High Speed Rail, and Hungary–Serbia railway are selected as overseas excellent demonstration projects with Chinese characteristics. Construction is carefully organized from aspects like engineering quality, safety guarantee, environmental protection, duration control, investment efficiency, technological innovation, local development, and whole industry chain development. Promotion experience shall be duly summarized to shape the international image of China's railway, and improve the international influ-

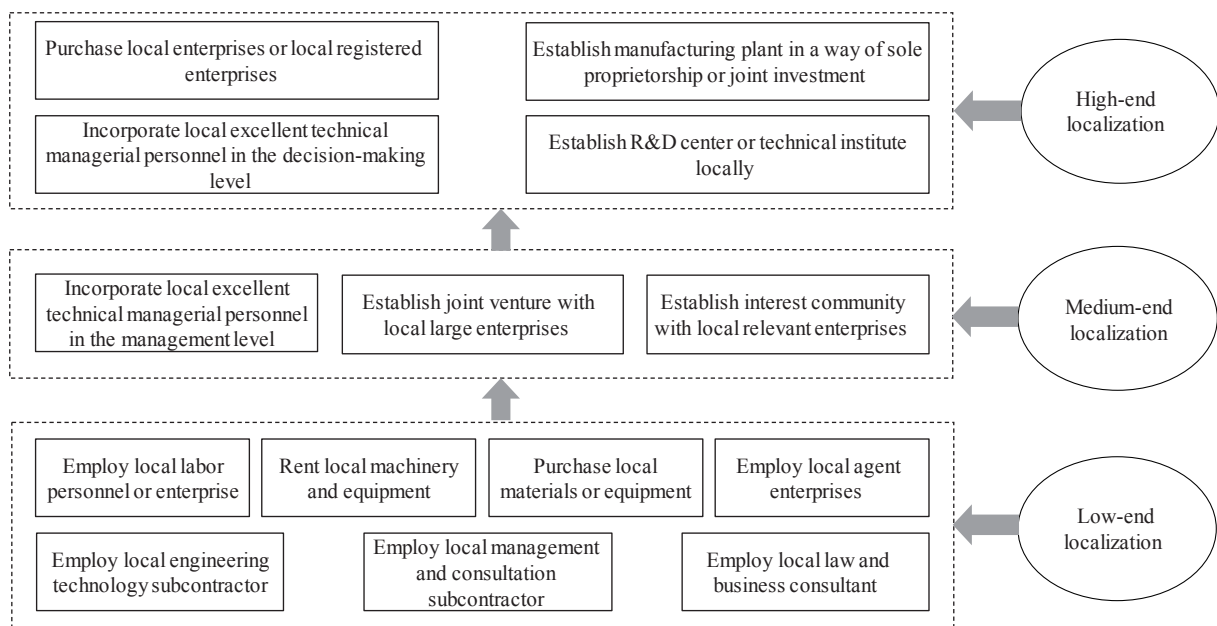


Fig. 2. Implementation path of localization.

ence of its brand, besides strengthening the willing of relevant countries to adopt Chinese railway technical standard and equipment in order to facilitate the expansion of the international market.

(3) Enlarge international influence of China Railway Express: China Railway Express is the representative of international transportation product of China's railway. It will be created into a model of international logistics of China's railway with international competence and credibility, which can better serve Belt and Road construction. According to market demand and development trends of China-Europe logistics, international railway cooperation along the Belt and Road shall be strengthened. Unified planning and stable promotion shall be followed to construct railway transportation corridor between China and Europe. Continuously expand operation scope; optimize transport resources; improve transportation and organization efficiency; expand cross-border electric business goods, as well as international parcel and cold-chain transportation; vigorously explore return source of goods; facilitate the convenience of customs clearance; shorten transportation time and reduce transportation costs; and strengthen intelligent guarantee and monitoring equipment and facilities to become a well-known international brand.

6 Suggestions and measures for China's "Go Global" railway strategy

6.1 Establishing efficient management and coordination mechanism

The China's "Go Global" railway strategy involves political, economic, diplomatic, and other aspects. Therefore, enhancement of leadership of high-level organizations, as well as top-level design, is especially required in establishing efficient management and coordination mechanism. Under the guidance of the national high-level exchange of visits, the intergovernmental exchange and policy dialogue shall be enhanced for timely negotiation to cooperatively address problems; improve cooperation mechanisms established with relevant countries in investment protection, finance, tariff, and customs and personnel exchange; and provide comprehensive support and guarantee for enterprises to go global. An organization dedicated to the China's "Go Global" railway shall be established. The top-level design for China's "Go Global" railway shall be studied. Its guiding opinions shall also be formed. A medium- and long-term plan shall be developed, and support policies shall be studied. The functions of the industry association and intermediary service institutions shall be strengthened. Social service organizations facing overseas investment and transnational operation shall be cultivated. The public information service platforms for the Chinese railway industry to go global shall be established and gradually improved.

6.2 Enhancing international railway consultation

Railway planning and design consultation, which involve a series of important issues like project approval, construction scale, and economic benefits, form an important basis in project decisions. The guiding role is played by preliminary consultation of railway projects. Through it, national realities and demands of the host countries can be learned, as well as key market opportunities and commanding height of technology standards occupied, so a solid foundation for the going-out of the whole railway industry chain can be laid. Governments and enterprises shall attach great importance to the international railway consultation services. The Ministry of Foreign Affairs, the Ministry of Commerce, and other authorities shall establish information communication mechanisms for railway development of host countries. They shall track and master the development information on overseas railways, support and encourage the engineering consultation enterprises of China in studying the international railway development planning, and encourage the combination of financial institutions and consultation organizations to raise the fund for the preliminary work of overseas railway projects through multiple channels. A package of resolutions for railway projects shall be provided based on the demand of host countries.

6.3 Providing more fiscal and financial support

Railway construction features great investment, long construction terms, and low return. Some countries are in urgent need of railway construction, but lack funds. Chinese enterprises also face excessive financing costs in competing for international railway projects. Therefore, fiscal and financial institutions are needed to implement stable support policies, as well as flexible and effective measures, based on the financing strategies of rivals. They shall provide sufficiently low-interest credit funds, as well as quality and efficient financial services for the going-out enterprises of the railway industry. Thus, balance the use of foreign aid funds and two kinds of preferential credits (preferential credit for foreign aid and preferential buyer's credit), and strive for support from international financial institutions. Give importance to the function of the Silk Road Fund, the China-Africa Fund, and the China-ASEAN Investment Cooperation Fund. Subsequently, expand the fund scale of policy-based financial institutions, increase the sources of low-cost foreign exchange funds of financial institutions, and strive for sufficiently low-interest and long-term preferential loans for Chinese enterprises to compete for international railway projects. Finally, improve the investment insurance system of overseas railways; establish sound cooperation mechanism between banks and insurance companies; encourage financial and insurance institutions to adapt to the needs of international competition; participate in overseas railway projects as early as possible; balance the design

financing and insurance schemes; and occupy the key market development opportunities.

6.4 Establishing and improving risk prevention and control system

The risks faced by going-out Chinese enterprises mainly include country, project, and participant's risks. Relevant authorities of governments shall try to provide information related to host countries and analysis materials of country risks for enterprises to go global. Railway enterprises shall comprehensively assess the overseas investment behaviors and the risks faced by them. They shall establish and improve their risk prevention and control system by formulating effective risk prevention measures. Moreover, pay attention to the prevention and control of legal risks in different regions; and strengthen the study, argumentation, and preliminary investigation on overseas investment environment, legal environment, and policies. Identify risk factors that affect enterprises' entry into other countries and markets for operation from political, economic, social, technological, and environmental aspects. Enterprises shall attach great importance to contract management risks; they shall establish risk identification, prevention, and control mechanisms, as well as crisis handling mechanisms, to realize normative, standardized, scientific, and dynamic management of risks, thus improving risk management efficiency and effects.

6.5 Promoting international influence of China's railway

At present, Chinese railways have a certain degree of recognition in the international market. However, they only have limited influence in international railway organizations. Therefore, the speech right of Chinese railway enterprises needs to be urgently enhanced in international railway organizations' activities in order to expand their international influence. Bilateral and multilateral national railway alliances established by related enterprises shall be supported for information communication, common development, and promotion of railway interconnection. Exchange and cooperation with organizations like the International Union of Railways (UIC) and the International Organization for Standardization (ISO) shall be enhanced—appointed personnel shall be recommended to join these organizations to track their development trend, and participate in the formulation

and revision of their strategies, policies, rules, and standards. Policies and measures that stimulate Chinese railway enterprises, organizations, and experts to participate in such activities shall be formulated. The technology and standard of Chinese railways shall be publicized by holding forums and exhibitions. The participation degree of Chinese railways in the fields involving international laws and standardization of railways shall be raised greatly, with promotion of inclusion of their advantageous and special technologies into the international standard.

6.6 Enhancing construction of talent team

Both Chinese enterprises and overseas railway projects all face talent shortage. Thus, constructing a multi-level international talent cultivation system is required. We shall combine formal engineering degree education and short-term training of urgently needed talents. The talent system based on the international standard shall be improved. Cultivate and introduce a batch of high-end talents endowed with international railway operation capacity who are familiar with international operation mode, and proficient in laws, business, languages and religions of key countries. In addition, training of overseas railway personnel featuring standardization and diversity shall be carried out. China Railway International Training Alliance for joint participation of railway enterprises and higher learning institutions shall be organized to carry out training on railway personnel of host countries by distinguishing training objects and demands; adopting flexible organization forms; combining long-, medium-, and short-term trainings; integrating comprehensive and professional training; and combining professional teaching, field visits, and internship. For countries with great demand for railway talents, cooperation with foreign education institutions can be carried out to establish railway training organizations or railway colleges in host countries for degree education in the railway discipline. For railway projects of which construction has been commenced, importance shall be attached to the cultivation of the first-line personnel required for railways.

The China's "Go Global" railway is a complicated system project. All related parties shall persist in exploration and innovation, make great efforts in railway construction and operation, go all out to complete the international railway demonstration project, build good international image, and promote Chinese railways to achieve better results.