

# **Modernization of Railway Stations for Passenger Transport in China**

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**Summary:** The Railway Station for Passenger Transport is an important part of the railway transport business. It is also the main changing hub in the comprehensive traffic system in cities. This passage, taking Shanghai Railway Station as an example, deals with the modern management of the railway station for passenger transport and the double-ring quality system of the setting-up of the three flows (the passenger, the train and the luggage and the two operation procedures dispatch and arrival)

## **1. A Survey of Railway stations for Passenger Transport in China:**

China is a country with vast territory and Large population. As many as about 4 million passengers travel by train per day .In 1990s, railway construction made historic achievements while Chinese economy is advancing at such a speed as has never been reached before. Chinese government increases its investment to the key basic facilities and starts to battle on a large scale for the railway construction. At the moment, Chinese general railway workmile has Overpassed 60,000 kilometres, which is Number 5 among the world's general railway workmile. The transport density has reached 24,751,000 tons per kilometre, which is Number 2 in the world .Except Tibet District, there is railway traffic and railway stations for passenger transport all over the country. The national railway worknet, taking Beijing as its center, has formed 15 railway lines towards the North, the West, the south and the East, which connects China with 5 foreign countries, including the united international railway transport between Tumen, Dan Dong , Ji An and Korea. According to incomplete statistics , there are 5,000 big or small railway stations , among which 44 are of special grade or the first grade. The development of marketing economy brought about a pluralistic structure of transportation, there is a keen competition among railway, highway and shipping transportation. But in the field of middle and long-distance transport, or the short-distance transport during rush-hours, railway still plays an important role and therefore remains the main artery in the national economy . Nowadays , the traffic in Chinese big cities may adopt the another form of the railway, that is, light rail mass transit , which will become the main traffic in big cities.

Railway station is a special material-producing unit , and also a public welfare service trade with obvious characters of public utilities. In the past ten more years, Shanghai Station , Tianjin New Xi'an Station , Chengdu Station, Chongqing Station and Shenzhen Station are rebuilt one after another, and many other middle and small stations,

such as A La San Kou(mountain pass)Station in the westest of China , Mian Yang Station , the key town of Sichuan Province. Shangqiu Station, the ancient city in the Central Plains , and Yinchuan Station , the shinning pearl in the Northwest of China, just like pearls , dot every line leading to all directions.

The reform of economic system arouses new vitality in transportation . To develop more effective transport system for the 21st century, we plan to introduce new and high technology , the ISO/900 series of international standard into railway station , to meet the needs of the society with better service and compete against other transportation for the market.

## **2. Modernization of transport facilities**

The modernization of a station depends on , not only the characters of passenger transport production , but also the characters of the times.

In 1990s, the railway of the world reaches a historic stage of new development . China must draw the experience of the railway development from foreign countries. Because of its rapid development of the railway construction in the East and the Southeast of China , in the larger passenger stations , especially in special stations or the first grade stations, there is a single independent information-managing system and all kinds of facilities of notice boards of the trains' arrival , cable broadcasting , telephone information desk , direction display , ticket-selling around the clock and accounting-management . They reach the unity of perfect forms and effective functions. They pay attention to the comprehensive service functions, making it more conveniently connected with cities' traffic, designing special blockingless for disabled persons, setting up automatic alarm system and closed-circuit TV system , and broadcasting in several languages.

Shanghai Station is a special grade station in China ,which was built in 1987 with great scale , novel design and advanced installations. So far as its equipment is concerned, it is a middle-level modernized station in China. There is a Big waiting ball in it , which has a capacity of 10,000 passengers with an area of 14,000 square meters, 7 platforms with a length of 500 meters and 13 rail lines , on which each day there are 46.5 pairs of trains which leave or arrive at Shanghai between Shanghai and Nanjing , 26 pairs of trains between Shanghai and Hangzhou and 6 pairs of district trains . Shanghai Station is also the first elevated station in China , with 2 entrances(the south and the North), and passengers can walk downstairs to their trains . Shanghai Station uses modern advanced facilities and installations in its service , luggage consignment, ticket-selling, managing and information-supplying, so that it could provide passengers with very comfortable, nice and convenient environment . At the same time , it can create conditions for modern scientific management, improvement of work efficiency and reduction of the intensity of labour. And there are 7 systems for different services.

### **1) Passenger Service System**

Seven large-scale escalators are installed in the south hall, the north hall and

VIP waiting room. They can carry 6,000 passengers per hour. As blockingless passenger passages, there are 11 elevators installed in all waiting rooms , In the west and east luggage rooms , there are 6 freight elevators , each carrying 3 tons of luggage, which can send 30 luggage vans per hour. In the waiting-hall the dining-hall and offices, which are closed to out-side , lager-scale air conditioners of lithium bromide are fixed to provide passengers with coolness in summer and warmth in winter. And the control monitors and cameras help to maintain safety and order inside the station . The managers of the station can at any time learn the passengers 'flow and movement . An advanced broadcasting system with eight channels can make programs for the coming- day broadcasting information and can broadcast automatically according to the time table. To make it convenient for passengers to acquire information, the station has set up the systems of coloured TV information desk and computer-by-touching information desk as well as the system of computer- telephone information desk . The statistical machines controlled by computers are adopted to check and collect passengers' tickets while they come into or leave the station . Automatic ticket examiners can check and account tickets up to eight trains at the same time . The ticket-collecting system can control 24 ticket-collecting machines and make accounting , and print statistical graphs.

#### 2) Passenger and Train Guide System

To provide passengers and trains with direction-guiding , a large scale LED notice board is installed in all places of the station to display the train number , the waiting room, the departure and the arrival time of each trains as well as the exact platform on which the train stops . This enormous display system is a display installation composed of 73 lighting diodes controlled concentratedly by computer . It clearly displays a lot of information. The board uses Chinese and English to meet different needs . To maintain the order of the station and the safety of the passengers, a network of underground lanes for luggage and post pouch is constructed so that all kinds of vehicles may use the underground ways , which have installed automatic sensors to prevent rear-end collision . Induction installations can record the number of vans which have passed.

#### 3) The Automatic System for Luggage Consignment and Delivery

All the consigned luggage are dealt with by computers , which could differentiate more than 700 stations , 40 kinds of luggage and 10 more different package types . and 40 more passing stations on each consignment line. In the deposit department, passengers may collect their luggage with the latest information, including the arrival time and the condition of the depository . etc.

#### 4) Ticket Network system

Shanghai Station is a special grade passenger station . Every day about 60,000 or 70,000 tickets are sold . Ticket Network System manage different tickets and reserve tickets in advance . There are many terminal ends of the system installed in hotels , booking offices and big or small stations , all information will be collected by the center of the system , and transmitted to each end to prevent waste of time and unnecessary troubles.

#### 5) Rolling Stock Control System

As a big operation center, Shanghai Station controls the distribution of power supply, including all electric switches, rail circuit districts, signals and the occupied lines. To improve the safety control coefficient of a train, a new system of timely bulletin and driving management is developed, which displays the arrival and the departure of a train as well as the condition in an adjoining station. The latest information will be transmitted to the interrelated department for the dispatch and the cooperative operation.

#### 6) Information System

Shanghai Station is also an information center, equipped with high-tech products like high-speed computers and multimedia facilities. The system mainly control ticket selling and train operation, serves both the business management and the transport production automation. The system consists of a multimedia facilities center, 2 networks(main network and regional network), different channels, terminal ends and soft techniques. The regional network includes ticket selling, consignment, service and train information. The establishment of this system will lay a foundation for Shanghai's becoming the first-international-grade passenger station.

#### 7) Hub of Communication for Train Changes

Railway stations are generally linked with city centers, therefore, they can often play the functions of traffic hub. Being the front door of metropolis like Shanghai, the station plays the function of a grade separation, just like a junction station in any other bigger cities in the world. Passengers may change directly to metro Line 1 without going out of the station, and the newly built elevated light rail will have a stop connected with Shanghai Station, from where passengers may change to any urban traffic into the city. The South and the North Squares are the terminals of more than 30 bus lines leading to all the directions of the city, and a large underground parking will be constructed in the North Square. Also, highway, shipping transport ticket offices are set up in the station

### **3. Modernization of Passenger Transport Management**

Just as promoting the progress of science and technology is the basic factor and condition in forming productive power and realizing the modernizations, fully knowing the importance of scientific management from consciousness and theories, absorbing new concepts of scientific management of the world and breaking the bond of conventional management are an important core of modernization of passenger transport and another side of developing productive power in improving business image, raising quality of business, extending the connotation of service, and strengthening the function of service.

The basic task of passenger transport is to fulfill the quantity of passenger transport and turnover. With respect to quality, it must be safety, exactness, quickness, convenience, comfort and economy. As compared with industrial production, the business of passenger transport has its own obvious characters, such as dynamic state,

synchronism , difference , scatter , sensitivity and random .

According to objective law in railway operation , we have established a management system , which not only fulfills the station requirements such as the operation sense , measures staff's 'standarization' , etc., but also helps to improve service quality through a new range of vision , like psychology , public relations, environment engineering , systematic engineering and aesthetics , etc..

Shanghai Station has set up a unique double-ring quality system , considering the three flows (passenger , train and materials ) , and two operation procedures (dispatch and arrival ). The system consists of 17 stages , in the dispatch ring , there are 11 stages : investigation of passenger flow , design , technological preparation , selling tickets, consignment . entering the station , waiting , preparing train , checking ticket , boarding the train loading luggage , departure , asking for passengers' opinions; in the arrival ring , there are 6 stages : meeting the train , leaving the train , collecting the tickets , getting out of the station , asking for passengers' opinions .

In all the stages , some new management ideas are adopted.

- 1) Change of management consciousness. Firstly it is the change from productive service to management service ; secondly it is the change from the closed to the opened ; thirdly it is the change from the unitary to the multiple; fourthly it is the change form physical type to mental type ; fifthly it is the change from waiting room type to multifunctional type ; sixly it is the change from extensive management to intensive management .
- 2) Fine circle in service management . Good service improves good management , and the result will be the procedure of service ----management ----quality----morality ----benefit----better services .
- 3) Synthetic and international standard service . We'll play in full the preponderance of Shanghai Station . develop diversified business and provide synthetic service , In a word , traveling , boarding , recreating , shopping will be considered as a whole project , and traveling by train , by air and by ship , or traveling at home and abroad will be treated as one service program . To attract passengers , the center of trade , information , commodity , entertainment and technology can be set up in those stations with good conditions .
- 4) Increase scientific and technical investment to realize , step by step . the electronic , automatic and systematic equipment in station .
- 5) Management means to manage all staff as modern management is taking persons as its center , Enhance the quality of the staff by adopting various ways for their training and education in vocation morality , culture and professional work skills , Through training and educating in various forms , at various levels and through various channels , the station must strengthen the staff's service skills and response ability under innormal conditions , so as to turn intelligence into transport ability and labouring productive power.
- 6) The managing-course must permeate the whole procedure of transport production . According to the law of passenger transport ( illustrated by the double-ring quality

system graph ), the standards of scientific management , supervision and examination must be set up in every link of the management chain of passenger transport ,.

In order to use the model of the international modern passenger station for reference and to wholly realize the target of modern passenger station with various functions and synthetic service type , Shanghai Station will adopt international standard of ISO9004-2, bring the basic principle into all the whole system . The 21st century is full of challenges , with the recovery of railway boom and especially the rising of urban mass transit, we believe that the railway station will play an even more important role in the transportation of tomorrow .

