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# Railway TERMINAL WORLD

The International Review of Rail Station and Terminal Technology and Design

## New radical design trends

We look at how  
the station design rule  
book is changing

### Passenger focus

Working to improve the rail travel experience

### French renaissance

France is adopting a multimodal approach

### Safety first

The issues of overcrowding on platforms

### American investment

The biggest rail developments in the USA

As a key interchange point between buses, coaches and trams, I was surprised at how easy it was to navigate Sydney's Central

# Welcome

While passing through Sydney's Central Station earlier this year, I realised just how impressive a railway terminal can be. With its high arched roof, Central's grand concourse is one of its most impressive features and the building overall is one of Sydney's most recognisable landmarks.

But it wasn't just its architecture that impressed me. After spending 12 hours on an overnight bus from Melbourne, I arrived at the station tired and just wanting to catch the train back to my hotel as soon as possible. The bus terminal is conveniently situated within a short walk of the railway station's concourse, information screens are easy to find and understand, and after locating which train I needed to be on I had 20 minutes to relax in one of the station's cafés. This was all done completely hassle-free.

As a key interchange point between buses, coaches and trams, I was surprised at how easy it was to navigate Central, especially considering the station serves around 30 trains per hour each way, with additional trains during weekday peak hours.

In this issue of *Railway Terminal World* we look at some equally impressive station development projects that are taking place around the world. Norreport Station – the busiest in Denmark – is one great example featured in the *Station Development* article (p6). “The urban design has been based on extensive research of how people actually use

the urban space at Norreport, how people move and which directions they take,” says Anne Barbra Hald of Public Architects, which will be sharing more about this project at the forthcoming Railway Terminal World Design and Technology Conference, held on 29-30 March at the Bella Center in Copenhagen (p50).

We also look at some of the design trends that have arisen out of redevelopment projects, such as sustainability, cultural influence and integration. Tianjin high-speed rail station in northern China (p18) is one of many stations around the world preparing for the increased use of high-speed rail. The station's new structure has been designed so it seamlessly flows into the landscape of a surrounding park.

Development of new high-speed terminals is also taking place in Turkey at two existing railway stations in Ankara and Eskisehir (p28). These two stations will be redesigned over the next three years to meet the specific demands of high-speed rail.

The following pages showcase many more rail station projects from countries such as the UK, Italy, France, Canada and the USA. Read on to discover how the face of the rail industry is changing.

**Helen Norman**  
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## Railway TERMINAL WORLD

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# Under lock and key

The results of a recent study into passenger needs and expectations make interesting reading for terminal operators looking to increase revenue by implementing efficient and customer-friendly luggage lockers

Words | Bernhard Rüger



Long-distance train travel invariably involves passengers having to deal with luggage, which usually consists of one main bag plus a hand-luggage item. There are many reasons why passengers may want to store their bags at the station. For business travellers who are attending meetings and for tourists who want to go sightseeing without dragging their belongings with them, secure luggage lockers are essential. Another reason, which is of interest to railway terminal operators as well as passengers, is that travellers may wish to free themselves up to enjoy their time at the station before boarding the train.

Air passengers are used to exploring an airport's duty-free and shopping areas before they take off, and modern railway stations are now becoming more like airports, improving passenger experience before they board by offering improved shopping and restaurant facilities.

The main difference between the services offered at airports and the ones offered at railway stations is that air passengers have already checked in their large luggage and are able to shop in the narrow aisles unhindered by belongings or the worry that they will knock something over.

If rail passengers could store their luggage somewhere, they would be able to fully utilise their time before boarding the train. The advantage for the passenger is that waiting time feels much shorter as they can browse in the shops instead of sitting on a bench in a cold departures hall, and for the terminal and

its outlets, more shoppers means more revenue. So, it is clear that stations need to offer luggage storage options to improve passenger comfort. However, as today's offering is very limited and does not fulfil requirements, a study funded by the Austrian Research Promotion Agency (FFG) and the Austrian Federal Ministry for Transport, Innovation and Technology (BMVIT) analysed the basic needs of passengers in terms of luggage storage. Around 3,000 passengers in Austria took part in the survey.

## Using waiting time

Depending on the age and the gender of passengers, the use of waiting time differs. For example, younger men often prefer to use their waiting time to work. Every fourth passenger prefers to go shopping. About one-third of passengers prefer to sit in a bistro or restaurant to eat. Another third prefer to sit in a waiting area or in a lounge.

Passengers who want to wander through the shops or go to a restaurant report that they feel handicapped by their luggage. In general more than one-third say they feel handicapped or very handicapped. Shoppers aside, one in four passengers who want to sit in a waiting area or who want to work feel handicapped because of their luggage.

About 60% of passengers with large and heavy luggage items feel handicapped by the luggage when they want to use the time for shopping or going to a café or restaurant. And even 30% of passengers with medium-sized luggage feel the same.





These figures illustrate the great number of potential consumers who want to go shopping or have something to eat and drink but can't because of their luggage. As a result, a concept for a customer-friendly locker system is going to be designed.

### Passenger needs

To make short-term luggage storage an option for travellers, price is one of the most important factors to be considered. About 70% of all passengers say that the price is the main reason why they won't use a locker at a rail terminal. Their willingness to pay depends on the length of time they plan to store their luggage.

About one-third of passengers who would like to use a locker before they board their train do not want to pay for the service. More than one-third of passengers are willing to pay €1 for one luggage item and hand luggage. Only one-quarter is willing to pay more than €1.

This research shows that if the station operator wants to increase the number of passengers visiting the shops then short-term lockers that offer two hours' free storage should be available.

When questioned about storing luggage for a longer duration passengers were willing to pay more. For using lockers for a day, 15% were willing to pay €1, one-third were willing to pay €2 and one-third were willing to pay €3 or €4. As the station operator has no immediate benefit, such as more passengers visiting the shops, a price between €2 and €4 seems to be acceptable. However, some passengers who lock their luggage away for

To make short-term luggage storage an option for travellers, price is one of the most important factors to be considered

some hours or for a whole day may, of course, do some shopping in the station before departure.

The handling of luggage lockers is an essential thing to consider. Passengers want lockers to be easy to find and at a suitable height so luggage can be lifted into them. Other considerations include the size of the lockers, the payment processes, the technology used, the duration of the locking process and the return.

Depending on a passenger's age and the gender, the height and weight of luggage that can be lifted will differ. For example, about 50% of female passengers with large luggage are not able or willing to lift it; about 20% are able or willing to lift it, but only up to about 1m; and only 30% are able to lift it higher than this. For approximately 70% of female and 40% of male travellers, storing luggage at floor level is important or very important. Also, for 70% of all passengers above the age of 60, this is a must.

The time taken to store and especially to return the luggage are very important criteria to consider. More than 25% of the rail passengers questioned say that the return of luggage should not take longer than one minute. However, more than 50% accept a



The lack of luggage lockers at rail terminals can greatly affect passenger experience

time between one and three minutes. The time taken starts from the moment the passenger arrives at the locker to retrieving the luggage and walking away. For systems that may need a bit longer – central locker terminals, for example – a timer that tells the remaining time in seconds would also be very useful.

Many of today's lockers are too small for ordinary luggage items. The width of many lockers is 33cm but 40% of all luggage items are bigger than this, meaning that some passengers either cannot store their bag or have to use a more expensive locker for bigger items.

### New system

About 80% of passengers who have more than a 30-minute wait at the station think about using a short-term locker so they can explore the station, and therefore would do so if the locker met their needs.

To fulfil the customer demands identified by the Austrian study, an Austrian project consortium consisting of Upper Austria University of Applied Science, the St Pölten University of Applied Science and consultant Netwiss GesmbH plan to develop a completely new locker system over the next few years.

For more information on this study, contact Dr Bernhard Rüger, St.Pölten University of Applied Science and Vienna University of Technology: [bernhard.rueger@tuwien.ac.at](mailto:bernhard.rueger@tuwien.ac.at) <<