Doppelmayr®

Doppelmayr Cable Car

Think cable. Move forward.

Doppelmayr Cable Car is an Austrian-based company with a constantly growing portfolio of the most renowned Automated People Mover (APM) installations worldwide. Doppelmayr Cable Car custom-tailors each system to meet the specific needs of their customers. Their core product is the Automated People Mover System Cable Liner®. It is based on cable propulsion technology and therefore holds several key advantages over other means of transportation. The APM runs on special guideways and offers impressive features in terms of costs, efficiency, environmental friendliness, and reliability.

The products of Doppelmayr Cable Car are suitable for distances up to 9 km (5.6 miles), depending on the planned system characteristics such as the location of stations, alignment, and headway requirements. Typical applications include airports, city centers, amusement parks, intermodal transport, and small downtown network solutions.

Doppelmayr Cable Car is a wholly owned subsidiary of the Doppelmayr Group, the world market leader in cable-propelled transport systems. Doppelmayr Cable Car's products build on more than a century of experience in cable-propelled technology. The simplicity of the overall concept results in great flexibility, in individual system design, and perfect handling of special requirements. Each installation meets the high standards and quality of the industry.

Contents

Doppelmayr Cable Liner® Automated People Mover

Operations Services


ONE
CIRQUE DU SOLEIL
MANDALAY BAY
ONE
CIRQUE DU SOLEIL


Download myVEGAS
Play Free Games
BlackJack

Las Vegas Mandalay Bay Tram

Las Vegas | USA

The Mandalay Bay Tram in Las Vegas, USA, is a success story of the Automated People Mover industry. It was the first Cable Liner® built by Doppelmayr Cable Car that went into operation. The customer needed very distinctive-looking trains and a guideway that would not detract attention from the surrounding architecture.

Doppelmayr Cable Car designed a train matching the pyramid at the Luxor hotel and utilized an open steel truss guideway, which is less obstructive than a concrete guideway. The Mandalay Bay Tram was completed in record time, taking only eight months from notice to proceed until handover. The system connects casino resort hotels owned by the MGM Mirage Group. Doppelmayr Cable Car's passive train concept allowed the use of a lightweight steel guideway. With a short lead time and rapid installation, the modular steel guideway helped Doppelmayr Cable Car meet the project's stringent deadline.

The APM system was installed to create a better flow of guests between the hotel properties and to attract tourists from one of the world's busiest intersections, Tropicana Avenue and Las Vegas Boulevard. Completed in April 1999, the Mandalay Bay Tram boasting a dynamic and enticing design has transported millions of passengers.

The Mandalay Bay Tram utilizes Doppelmayr's Cable Liner® Shuttle technology. Two independent shuttle systems run side by side on an elevated guideway. The five-car trains are propelled by stationary drive machinery, which performs all essential functions, such as train acceleration, speed, propulsion, and braking. Eliminating onboard motors, gearboxes, and hydraulics reduces the train's weight and results in a lighter, less expensive system that is easier to maintain.

Customer	MGM Mirage Group
Length	838 m (2,749 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	36 km/h (22.4 mph)
Headway	220 s
Dwell Time	50 s
Guideway	Elevated steel truss
System Capacity	System One: 1,300 pphpd* System Two: 1,900 pphpd*
Stations	System One: 4 System Two: 2
Trains	Two 5-car trains
Train Capacity	160 passengers/train

↗ Custom-tailored transport system designed for its unique environment

*pphpd = passengers per hour per direction

Birmingham International Airport Air-Rail Link

Birmingham | United Kingdom

Birmingham International Airport faced the challenge of replacing its Maglev system with a modern, reliable and, above all, economically viable system. As part of a political initiative to increase public transportation use, the airport needed a direct link to existing public transportation facilities.

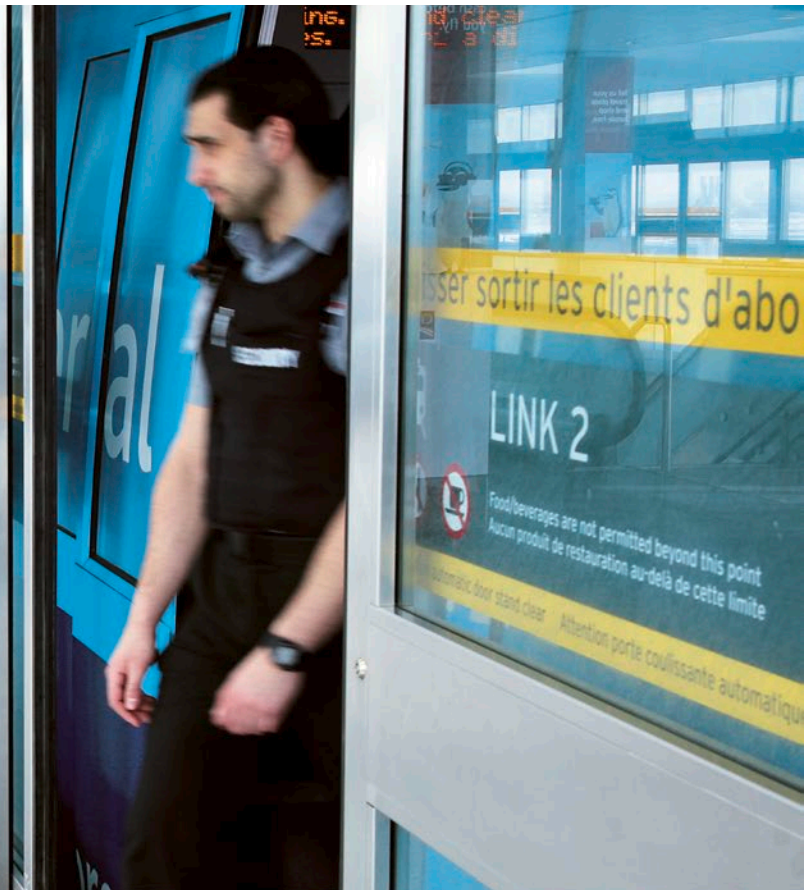
Doppelmayr Cable Car relied on its dynamic, adaptable technology to resolve its design for Birmingham. Project-specific requirements posed numerous challenges, such as utilizing existing guideway structures and incorporating the APM's drive machinery, control room, and other system equipment in strictly limited space. Doppelmayr Cable Car custom-tailored an innovative drive concept to accommodate Birmingham's needs, placing the drive machinery, maintenance facility, wash bay, and central control room in the system's mid-station.

The convenient new Air-Rail shuttle system takes travelers from the public transportation interchange to the check-in terminal in 90 seconds.

↗ Automated proven ropeway technology – perfectly integrated into an existing infrastructure

Customer	Birmingham International Airport
Length	588 m (1,929 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	36 km/h (22.4 mph)
Headway	120 s
Dwell Time	30 s
Guideway	Elevated steel truss on concrete superstructure
System Capacity	1,600 pphpd
Stations	2
Trains	Two 2-car trains
Train Capacity	54 passengers/train


Terminal Link
Toronto Pearson
Toronto Pearson


LINK 2
Food/beverages are not permitted beyond this point
Aucun produit de restauration au-delà de cette limite

Toronto Pearson International Airport Terminal Link

Toronto | Canada

Toronto's Airport Terminal Link started service in July 2006. Two trains operate in shuttle mode with a total capacity of 2,500 pphpd. The APM's dual-track configuration has been designed to accommodate greater passenger numbers and offer increased frequencies and high availability, making traveling within the airport quick and easy.

Doppelmayr Cable Car's cable technology is ideal for extreme weather conditions. Even Toronto's freezing rain, snow, and high temperatures cannot impact the system's reliability. The trains do not depend on guideway frictions, so no guideway heating is required. Performing flawlessly in even the most challenging conditions, Doppelmayr Cable Car's system offers steadfast punctuality, comfort, and convenience, enhancing the visitors' travel experience.

The Toronto project also required a quiet system because of its proximity to a hotel. Doppelmayr Cable Car's silent trains with rubber tires were the solution. With no onboard motors, the cable-propelled system is inaudible while providing guests convenient transport directly to the terminal. Toronto Pearson is a state-of-the-art airport, which easily handles about 50 million passengers per year. A cable-propelled transit system is among the cleanest, most sustainable transit options for high-density applications. Doppelmayr's Cable Liner® played an important role in this transformation, bringing substantial improvements to modern and efficient passenger logistics. The 1,473 m (4,833 ft) long elevated system links Terminal 1, Terminal 3, and the large parking facility at the Viscount station with a travel time of slightly more than three minutes.

Doppelmayr Cable Car is dedicated to creating the most environmentally responsible transportation possible. The people mover system in Toronto relieves shuttle bus congestion in and around the airport.

In 2013, Doppelmayr Cable Car accomplished a system extension to increase the capacity of the existing APM by adding a seventh cabin to each train.

Customer	Greater Toronto Airports Authority
Length	1,473 m (4,833 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	43.2 km/h (26.8 mph)
Headway	250 s
Dwell Time	36 s
Guideway	Elevated steel truss
System Capacity	2,500 pphpd
Stations	3
Trains	Two 7-car trains
Train Capacity	175 passengers/train

↗ Operational, punctual, and comfortable in even the harshest climate conditions

Mexico City International Airport Aerotrén

Mexico City | Mexico

Doppelmayr Cable Car overcame site constraints to complete Benito Juarez International Airport's elevated Cable Liner® Shuttle in just 22 months. The system has been in operation since November 2007 and played a crucial role in the airport's modernization.

Benito Juarez International Airport in Mexico City is Mexico's main international and domestic gateway and offers flights to almost 50 million passengers per year. Heavy traffic through this important hub required significant extensions. When site issues necessitated placing one of the terminals in a relatively distant location, Doppelmayr Cable Car supplied an essential element of the new airport – the new Cable Liner® Shuttle is the only connection between Terminal 1 and the remotely located Terminal 2. It guarantees passengers a reliable, fast, and seamless transfer between the two terminals. The shuttle transports passengers over a total distance of 3,025 m (9,925 ft) in less than 4.5 minutes.

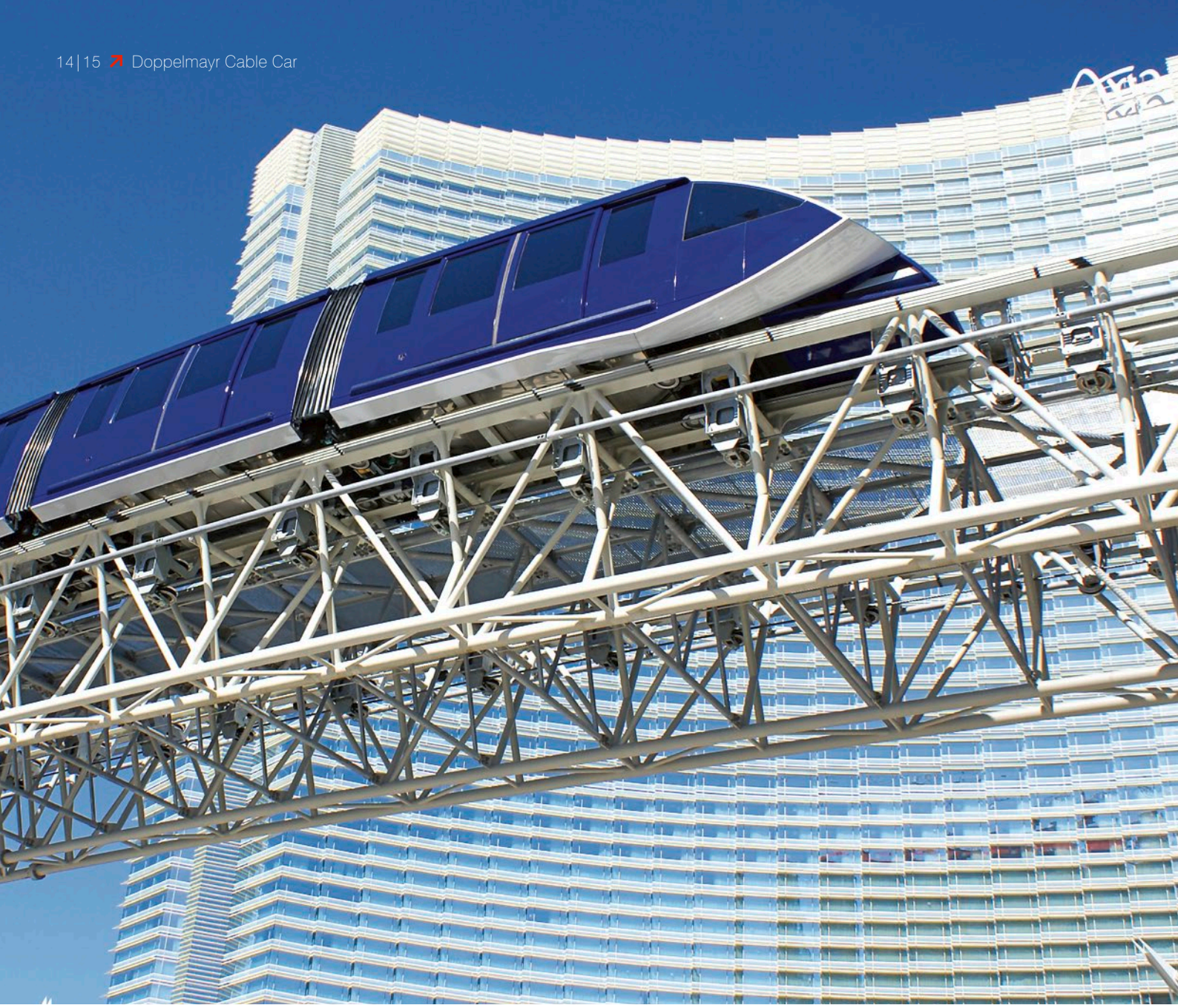
The airport required an affordable APM that could be built on the shifting foundation of a partially dry lakebed. One decisive factor in the customer's choice was Doppelmayr Cable Car's ability to adjust to ground settlements with its steel guideway concept. Steel adapters between the steel guideway truss and the concrete columns allow height adjustments to compensate for the soil settlements which are predominant in Mexico City.

In a joint venture with Empresas ICA S.A.B. de C.V., who were responsible for civil construction, Doppelmayr Cable Car designed and built the APM system on a turnkey basis.

Doppelmayr Cable Car's sleek, contemporary design not only adds a modern quality to the airport's atmosphere but anticipates future growth. The system was designed to accommodate increased capacity demands. The current four-car train can be expanded to a six-car train, increasing capacity by up to 50%. The system's ultimate capacity is 800 pphpd.

Reliable capacity and availability for smooth traveling

Customer	Aeropuerto Internacional de la Ciudad de México
Length	3,025 m (9,925 ft)
Configuration	Cable Liner® Single Shuttle
Operating Speed	45 km/h (27.9 mph)
Headway	660 s
Dwell Time	60 s
Guideway	Elevated steel truss
System Capacity	600 pphpd (extendable to 800 pphpd)
Stations	2
Trains	One 4-car train
Train Capacity	100 passengers/train (4-car train)



Customer	MGM Mirage Group
Length	620 m (2,034 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	37.8 km/h (23.5 mph)
Headway	150 s
Dwell Time	24 s
Guideway	Elevated steel truss
System Capacity	3,300 pphpd
Stations	3
Trains	Two 4-car trains
Train Capacity	132 passengers/train

Standardized modular system for rapid installation

Las Vegas CityCenter Tram

Las Vegas | USA

MGM's CityCenter shuttle opened in December 2009. Designed to mirror the city's atmosphere of glamour and excitement, the system soars 25 m (82 ft) above the ground and spans 67 m (220 ft) between support towers. With a capacity of 3,300 pphpd, the system winds through a maze of high-rise towers connecting three adjacent MGM resorts.

As part of a US $ 9 billion project, the APM system crossed each of the three key development sectors of the project and had to be installed concurrently with other constructions. Doppelmayr Cable Car skillfully handled the challenge of coordinating the direct interface of the APM project with these three overlapping construction sites on or ahead of schedule.

"Doppelmayr Cable Car has more than met our expectations, meeting a stringent construction schedule under challenging circumstances. Our consulting firm recommended Doppelmayr Cable Car based on their unique ability to design and install a custom-ordered APM system in record time and their exceptional abilities in project management," said Thomas S. Leary Jr., former Director of Design & Construction, MGM CityCenter. In addition, Doppelmayr Cable Car customized the guideway design to meet the project's unique aesthetic needs.

Doppelmayr Cable Car's clean technology was the ideal choice for MGM's unusually high sustainability standards. Earning the LEED Gold standard for sustainable building, MGM focused on conservation throughout its development of CityCenter. "From its inception to design, development, and construction, we had one single goal in mind for CityCenter: create a destination that is not only built in an environmentally sustainable manner, but also operates every day with an equal commitment to conserving natural resources," said Bobby Baldwin, President and CEO, CityCenter. Sharing its customer's commitment to environmental responsibility, Doppelmayr's energy-efficient Cable Liner® has no emissions of any kind. CityCenter is Doppelmayr Cable Car's second system for the MGM Group – a high-profile client with a focus on design, customization, and speed.

People Mover Venezia

Venice | Italy

With its highly flexible technology, Doppelmayr Cable Car created the perfect way to alleviate congestion in the city of canals – an inspiring, elevated system.

As a fully integrated element of the public transportation network, Doppelmayr's Cable Liner® for Venice carries passengers to the heart of the city. Having arrived at the man-made off-site parking island Isola del Tronchetto, the convenient connection to Piazzale Roma offers the starting point to explore the city's historic center. An intermediate station at Porto Marittima includes future hotel infrastructure and a port for cruise ships.

Doppelmayr Cable Car's cable propulsion features the lowest possible overall system cost. Its adaptable technology also yielded a beautiful addition to the city. The bright, modern station design, based on an open concept and made of steel and glass, was created by Architect Francesco Cocco.

The Cable Liner® system relieves traffic at Piazzale Roma and has no emissions of any kind. Pollution is a special concern in areas where cherished historic architecture must be preserved. The Cable Liner® is an efficient choice for a feeder system in an urban environment and offers two trains on a single guideway which bypass each other via switches at an intermediate station. The bypass arrangement guarantees almost the same operating performance as a double-track system in terms of headway and capacity at nearly half the guideway costs.

Customer	Agenzia Veneziana della Mobilitá SpA
Length	850 m (2,789 ft)
Configuration	Cable Liner® Bypass
Operating Speed	28.8 km/h (17.9 mph)
Headway	240 s
Dwell Time	30 s
Guideway	Elevated steel girder
System Capacity	3,000 pphpd
Stations	3
Trains	Two 4-car trains
Train Capacity	200 passengers/train

↗ Perfect match for urban environment with low operation costs

Caracas Cabletren Bolivariano

Caracas | Venezuela

Maintaining its core principles of simplicity and functionality, Doppelmayr Cable Car once again identified the most efficient solution for Caracas – one of Latin America's most densely populated regions.

Doppelmayr Cable Car systems offer all the qualities required to handle the challenges and demands of the city: a congested urban environment and difficult soil conditions, which make the construction of a metro difficult. The elevated Cable Liner® system design of the Cabletren Bolivariano keeps its column and foundation footprint to a minimum, thus allowing the guideway to weave through Caracas's existing developments.

The light APM system allows for a streamlined steel guideway, which is ideal for overbuilt sites. Instead of the Metro concept's single mid-station, three mid-stations can be used for additional passenger convenience.

The installation features a "Pinched Loop" configuration. With this innovative technology, Doppelmayr Cable Car brings the advantages of cable propulsion to longer-length systems. Doppelmayr Cable Car's walk-through trains are an excellent solution to meet the demands of public transportation.

This new mode of transport plays an important role for the metropolitan area of Caracas and represents a significant improvement for the entire population.

Customer	Metro de Caracas
Length	2,100 m (6,890 ft) 900 m (2,953 ft), Phase 1
Configuration	Cable Liner® Pinched Loop
Operating Speed	46.8 km/h (29.1 mph)
Headway	250 s
Dwell Time	40 s
Guideway	Elevated steel truss
System Capacity	3,000 pphpd
Stations	5
Trains	Four 4-car trains Two 4-car trains, Phase 1
Train Capacity	210 passengers/train

↗ Intermodal transport system linking city areas and providing the highest comfort for passengers


Estación
Petare
II
Gobierno Bolivariano

New mobility on a new street level – ecological and economic efficiency

Customer	Bay Area Rapid Transit
Length	5,000 m (16,424 ft)
Configuration	Cable Liner® Pinched Loop
Operating Speed	50.4 km/h (31 mph)
Headway	280 s
Dwell Time	58 s
Guideway	Elevated steel truss
System Capacity	1,500 pphpd
Stations	3
Trains	Four 3-car trains
Initial Train Capacity	113 passengers/train (3-car train)
Ultimate Train Capacity	148 passengers/train (4-car train)

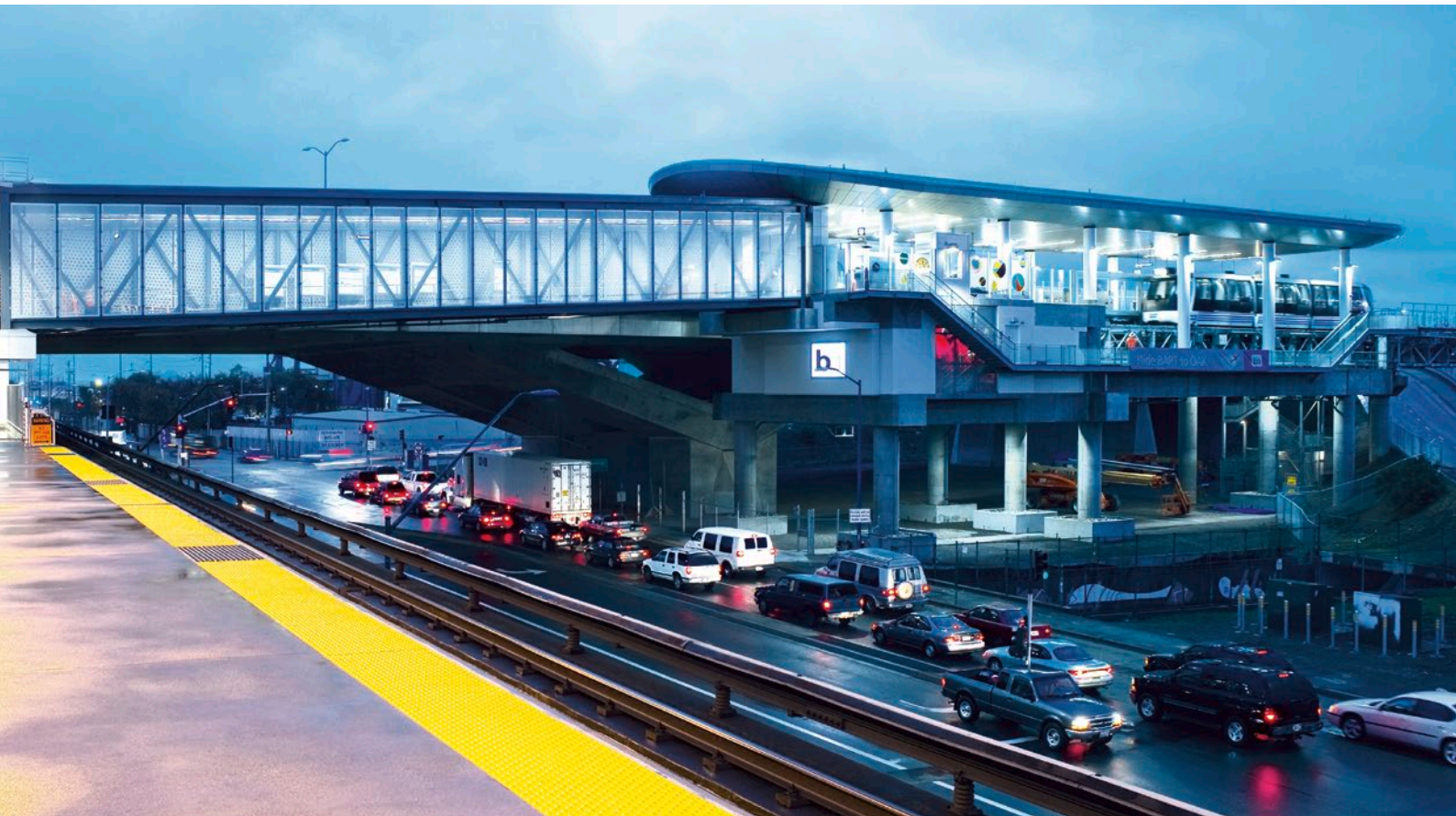
Oakland Airport Connector

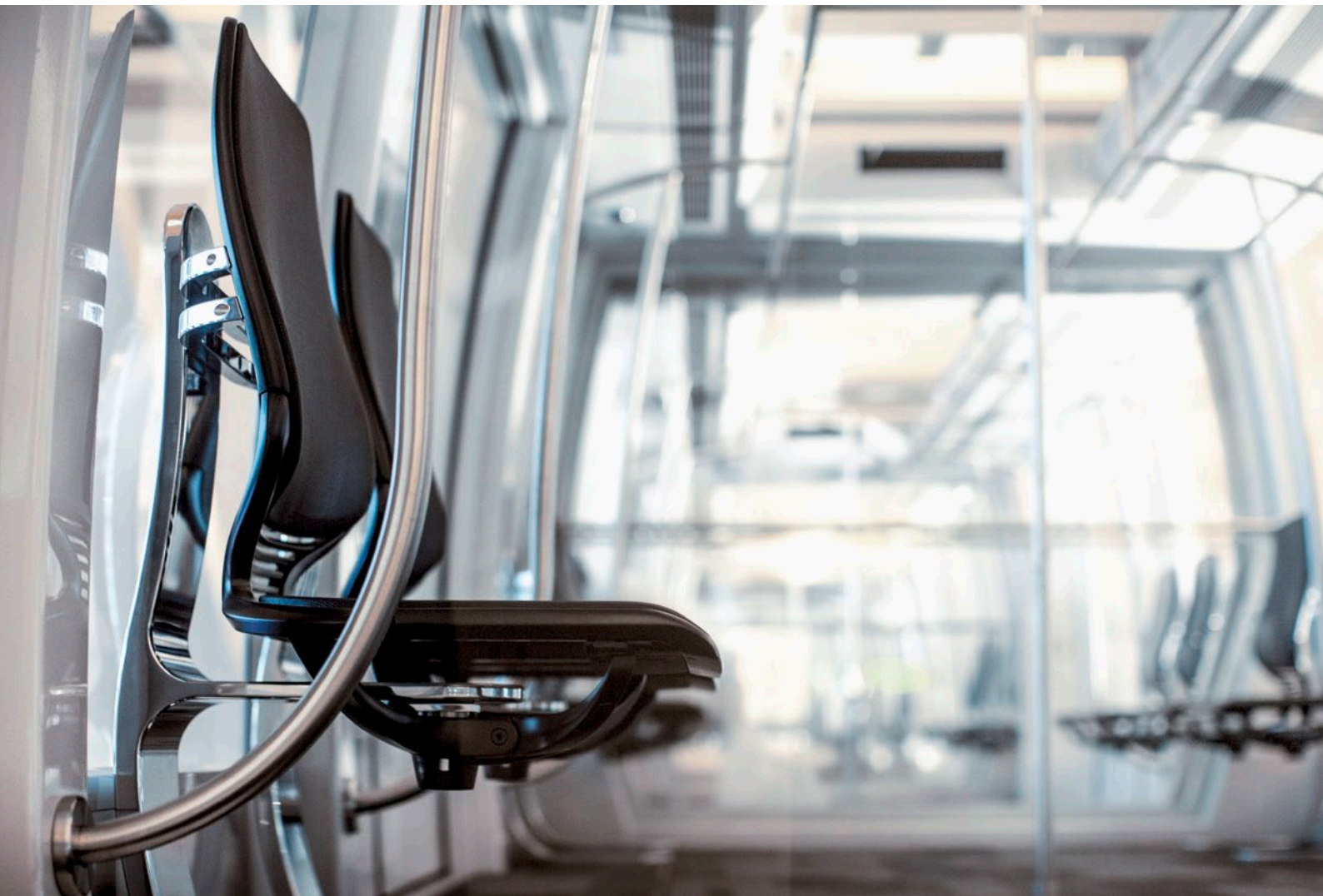
Oakland | USA

Doppelmayr Cable Car's advanced engineering realized BART's dreams of adding an airport connector to its existing rail network. Many years in the making, the Oakland Airport Connector project finally came together when Doppelmayr Cable Car showed that cable technology offers the most affordable, efficient, and environmentally friendly solution.

Doppelmayr Cable Car's ongoing technological development has expanded its potential system range. The Oakland Airport Connector proves the impressive advantages of cable propulsion: lighweight, elevated system construction (which is ideal for integration in an existing construction), demonstrably lower costs, environmental benefits, and easy maintenance. With its latest advancements, such as Pinched Loop arrangements and detachable grips, Doppelmayr Cable Car created the best solution for Oakland's needs. By providing an affordable option for the airport connector, Doppelmayr Cable Car plays an important role in enhancing the community's future economic development and prosperity – without one, visitors using the public transportation network would have to wait at street-level bus stops with their luggage.

The 5 km (3.1 mile) Automated People Mover creates an important link between Oakland's airport and a public transportation hub at the Oakland Coliseum while providing the backbone for transit-oriented development along Oakland's Hegenberger corridor. Traveling at a maximum speed of 50.4 km/h (31.3 mph), the bidirectional system consists of four trains with three cars each and carries 1,500 passengers per hour per direction.





Doha Hamad International Airport Passenger Train

Doha | Qatar

Silent, beautiful, and efficient, Doppelmayr Cable Car's glass-roofed trains glide directly through the bustling terminal at Hamad International Airport (HIA) in Doha, one of the biggest and busiest hubs in the Middle East.

Doppelmayr Cable Car's custom design harmonizes with HIA's outstanding architecture, becoming a central feature of the new airport. Primary criteria in this best-value procurement were reliability, silence, and aesthetics. Key selection factors included minimized structural impact due to the light Cable Liner® system, special system features and design as well as the lowest operation and maintenance costs available for an APM.

Doppelmayr Cable Car's propulsion concept is ideal for the HIA system requirements, which call for an indoor system with trains moving alongside pedestrian traffic in the open terminal building. The ambitious design could only be realized with Doppelmayr Cable Car's noiseless trains. Furthermore, Doppelmayr Cable Car's swing-car concept can handle both secured and non-secured passengers. The glass-roofed, walk-through trains feature a pleasantly open environment and luxurious interior furnishings. Air-suspension vehicles guarantee the utmost in comfort.

Customer	New Doha International Airport
Length	772 m (2,533 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	45 km/h (27.9 mph)
Headway	110 s
Dwell Time	44 s
Guideway	Steel running surface on pods in a concrete trough
System Capacity	6,300 pphpd
Stations	2
Trains	Two 5-car trains
Train Capacity	192 passengers/train

↗ Perfectly suitable indoor solution: quiet, smooth, and reliable

Moscow Sheremetyevo Airport Inter-Terminal Transit

Moscow | Russia

The Cable Liner® is a fully automated rope-propelled transport system which already provides impressive efficiency and performance at numerous international airports. Now also Sheremetyevo International Airport in Moscow placed its trust in the expertise of the world leader in rope-propelled transport solutions.

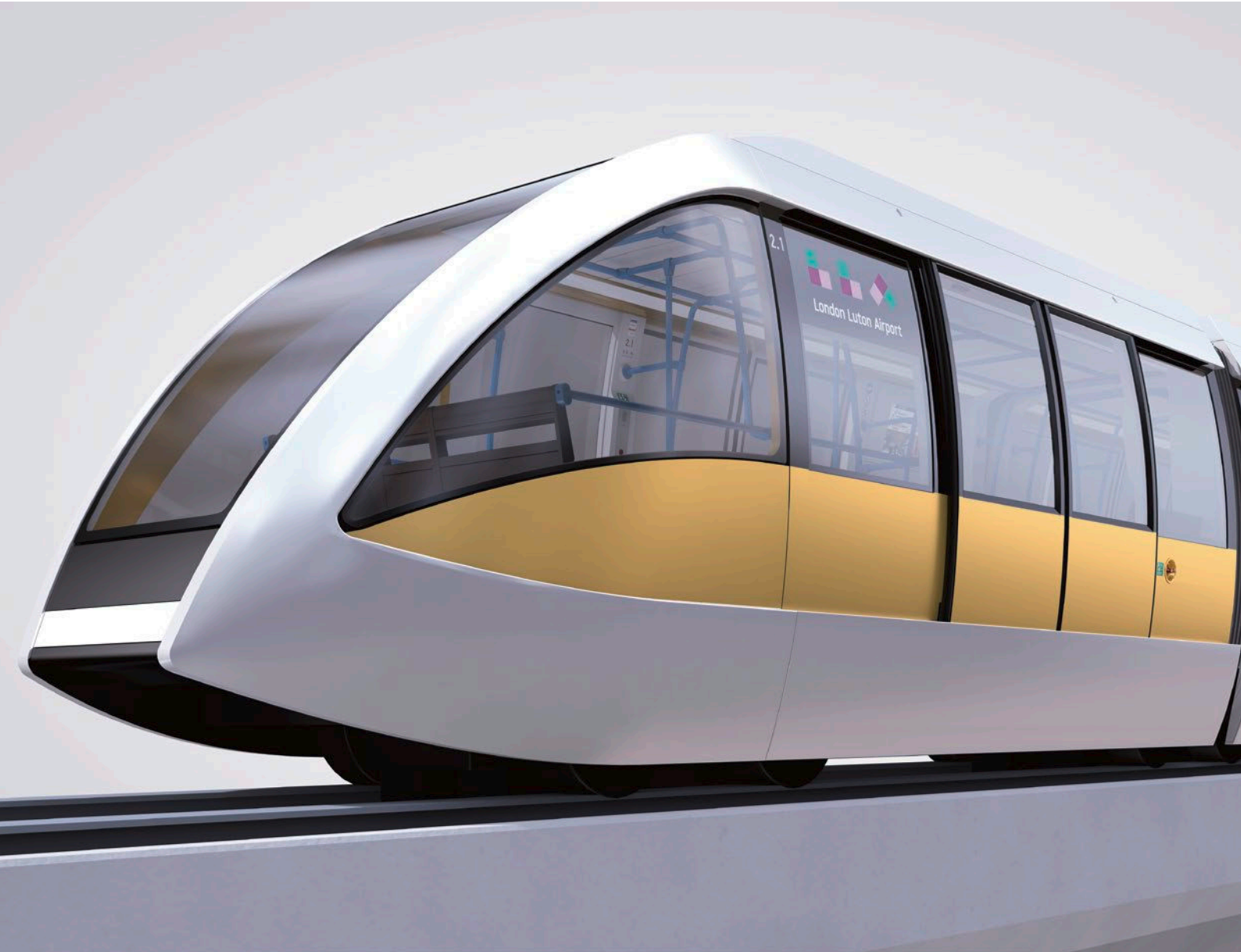
Doppelmayr Cable Car built a Cable Liner® Double Shuttle system which runs entirely underground. It connects the northern and southern terminal complex over a distance of more than two kilometers.

Sheremetyevo is Russia's largest airport and serves around 250 international destinations. The new transport system provides greater comfort for air passengers 24/7/365.

Customer	Sheremetyevo International Airport
Length	2,080 m (6,824 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	50.4 km/h (31.3 mph)
Headway	225 s
Dwell Time	30 s
Guideway	Concrete-Steel Hybrid
System Capacity	1,700 pphpd
Stations	2
Trains	Two 4 car-trains
Train Capacity	108 passengers/train

State-of-the-art cable propulsion technology for simple and comfortable connection


LUTON PARKWAY STATION


2.1
London Luton Airport

London Luton Airport Direct Air-Rail Transit (Luton DART)

Luton | United Kingdom

London Luton Airport lies roughly 50 kilometers north of the UK capital.

A new transport link (Cable Liner® Double Shuttle) between the rail station Luton Airport Parkway and the airport will improve passenger journey time and connectivity to and from the airport using a modern, sustainable, and efficient system.

The Doppelmayr Cable Liner® Double Shuttle will provide a passenger service every four minutes during peak times. Doppelmayr Cable Car will also be responsible for operating the system for the first five years – with an option to extend the agreement by another five years.

The Cable Liner® Shuttle from Doppelmayr Cable Car impressed the customer thanks to its capacity, reliability, and energy efficiency. Councillor Andy Malcolm, Chair of London Luton Airport Limited, had this to say: “This investment will encourage and transform the experience of those traveling to the airport by rail, thereby helping to reduce congestion on the roads, and confirms our confidence in Luton’s potential for economic and employment growth.”

The Doppelmayr Group has a large number of similar reference projects to its name. In the UK, Luton is now the second airport that has placed its trust in the expertise of the global market leader. The Air-Rail Link in Birmingham has been operating since 2003.

In this latest project, Doppelmayr Cable Car will be focusing a special emphasis on value creation for the local area. The partnership with schools and colleges in Luton will be particularly important during the implementation phase. Local businesses and young people are to be involved during construction of the Luton DART. The system will open for public service in 2021.

Customer	London Luton Airport Limited
Length	2,080 m (6,824 ft)
Configuration	Cable Liner® Double Shuttle
Operating Speed	50.4 km/h (31.3 mph)
Headway	225 s
Dwell Time	45 s
Guideway	Steel Running Surface on H-Frames installed on a Continuous Concrete Slab
System Capacity	2,700 pphpd
Stations	2
Trains	Two 4-car trains
Train Capacity	170 passengers/train

↗ Fast and easy transport from train to plane

Operations Services

Commitment to quality
Doppelmayr Cable Car's commitment to quality does not end when the systems are delivered to the customers. It continues for the entire lifetime of the system. More than 20 years of worldwide operations services expertise is reflected in every installation and provided to our clients as a full-service contract.

A valuable lifelong partnership
In a world of complexity, the uniquely straightforward rope-propelled technology meets highest standards for safety and reliability. Doppelmayr Cable Car has accredited international experience in operating systems long term, in various challenging environments for sophisticated customers such as transit agencies, airport authorities, and the private sector. Doppelmayr Cable Car consistently exceeds industry benchmarks for reliability, safety, and maintainability, thereby fully meeting clients' expectations.

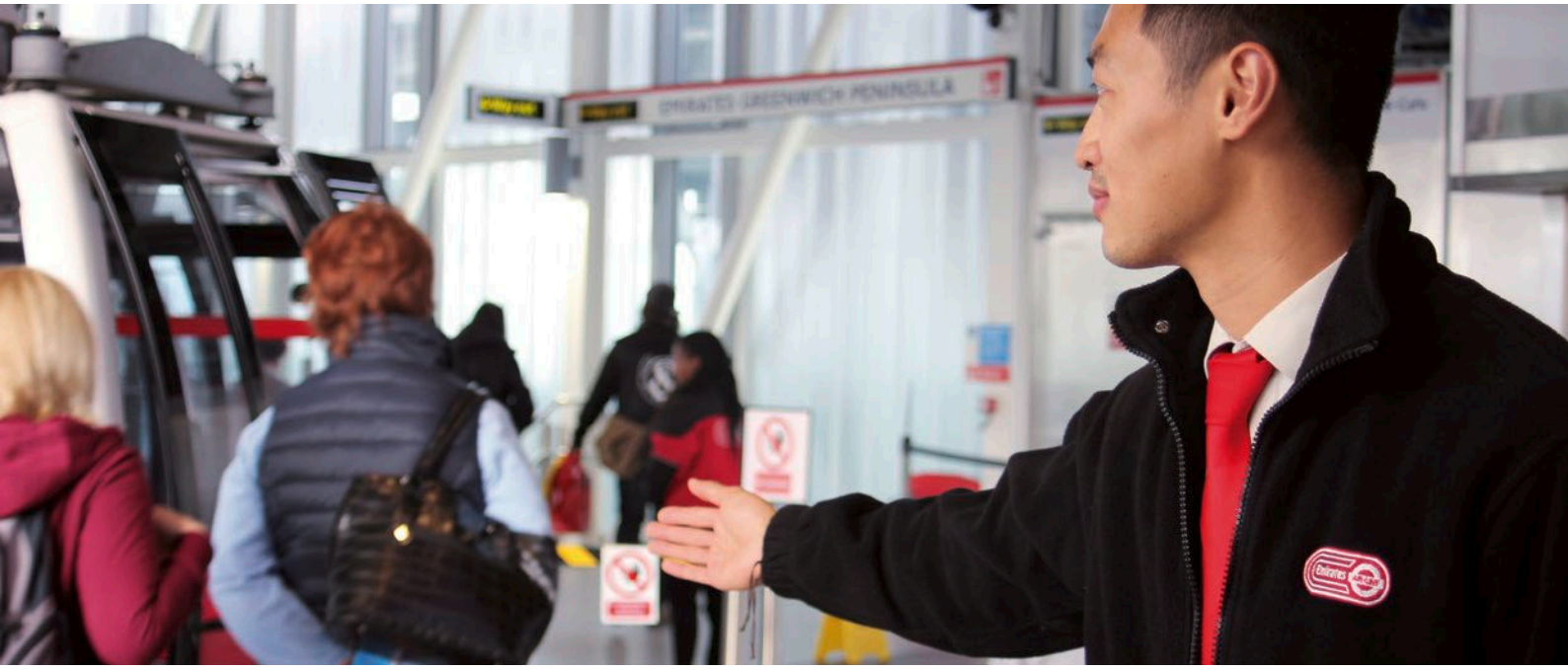
Focus on return on investment
Customers who wish to incorporate a transport system into their portfolio benefit from long-term comprehensive operations services contracts. Cost certainty allows decision-makers to easily prepare business models with forecasted lifecycle costs and practice more efficient asset management.

Contracts to meet customer requirements for comprehensive operations services establish Doppelmayr Cable Car as a partner from the beginning of the design-build stage all the way through to the operational stage and the entire system lifecycle. A full-service contract includes all of the required parts, services, and operational overhead in one simple fee.

Doppelmayr Cable Car works closely with all customers to create the specific technical and business framework that satisfies all of their needs. A detailed analysis is performed to determine the unique operational and environmental variables that will shape the system design and O&M requirements. Careful attention is paid to the following:

- Definition of objectives and key performance indicators to measure success.
- A detailed scope of work to specify roles and responsibilities.
- A detailed timeline and procedure for the handover of all O&M activities to Doppelmayr Cable Car at the beginning of the contract term.
- Constant monitoring and reporting procedures.
- Guaranteed availability of 99.50% (which Doppelmayr Cable Car systems consistently exceed).

Customer benefits from O&M Program



Cost certainty for all O&M services

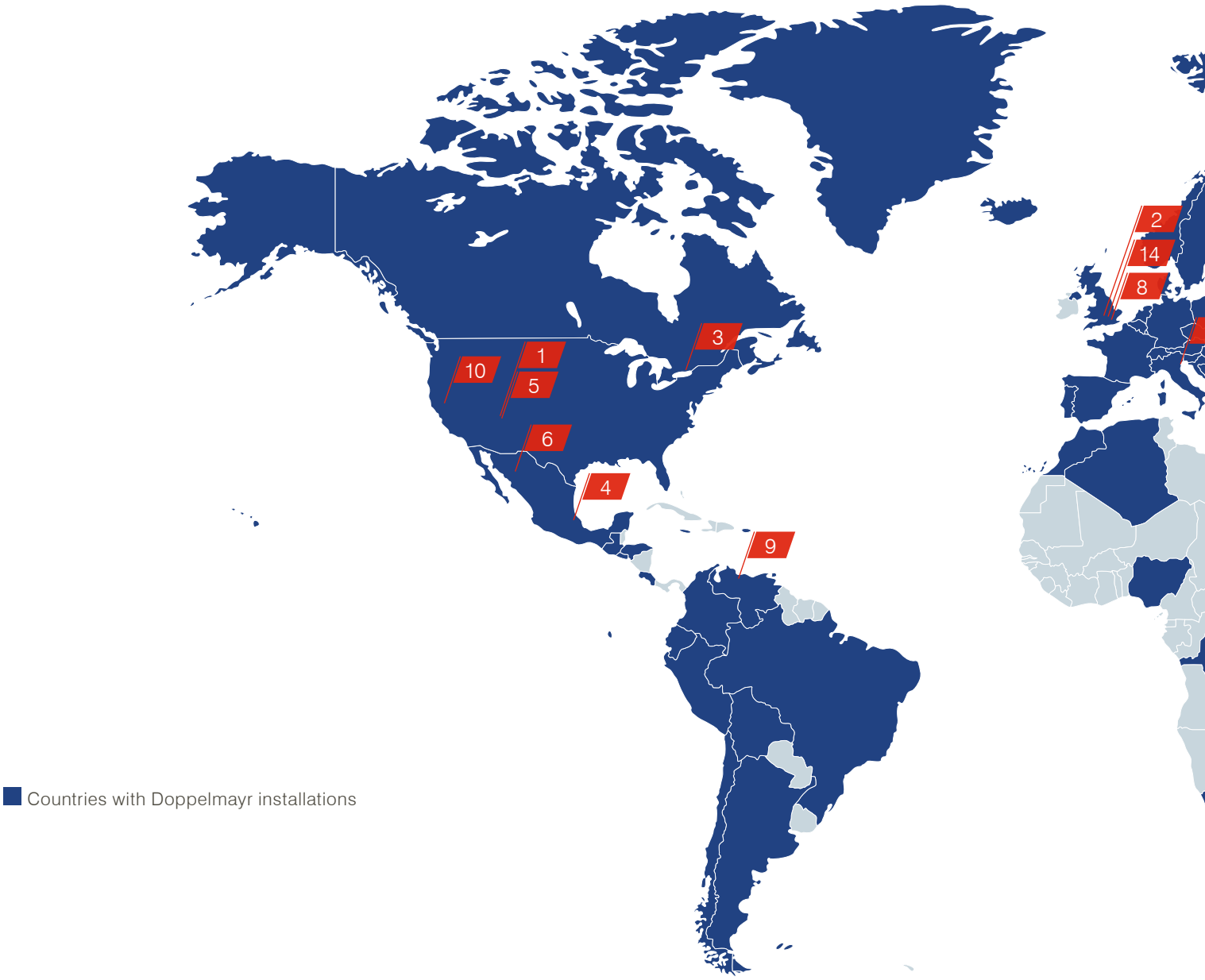
- All of Doppelmayr Cable Car's expertise included in one simple fee.
- Set-up and development of the entire O&M organization, including training, processes, and procedures, specialized tools and equipment as well as customized software reporting tools.
- Easy-to-understand, transparent, and risk-free total cost of ownership.

Maximized system performance

- System design to perform at a high level of reliability in high-usage applications including 24/7/365 services.
- Striving to exceed all performance benchmarks.

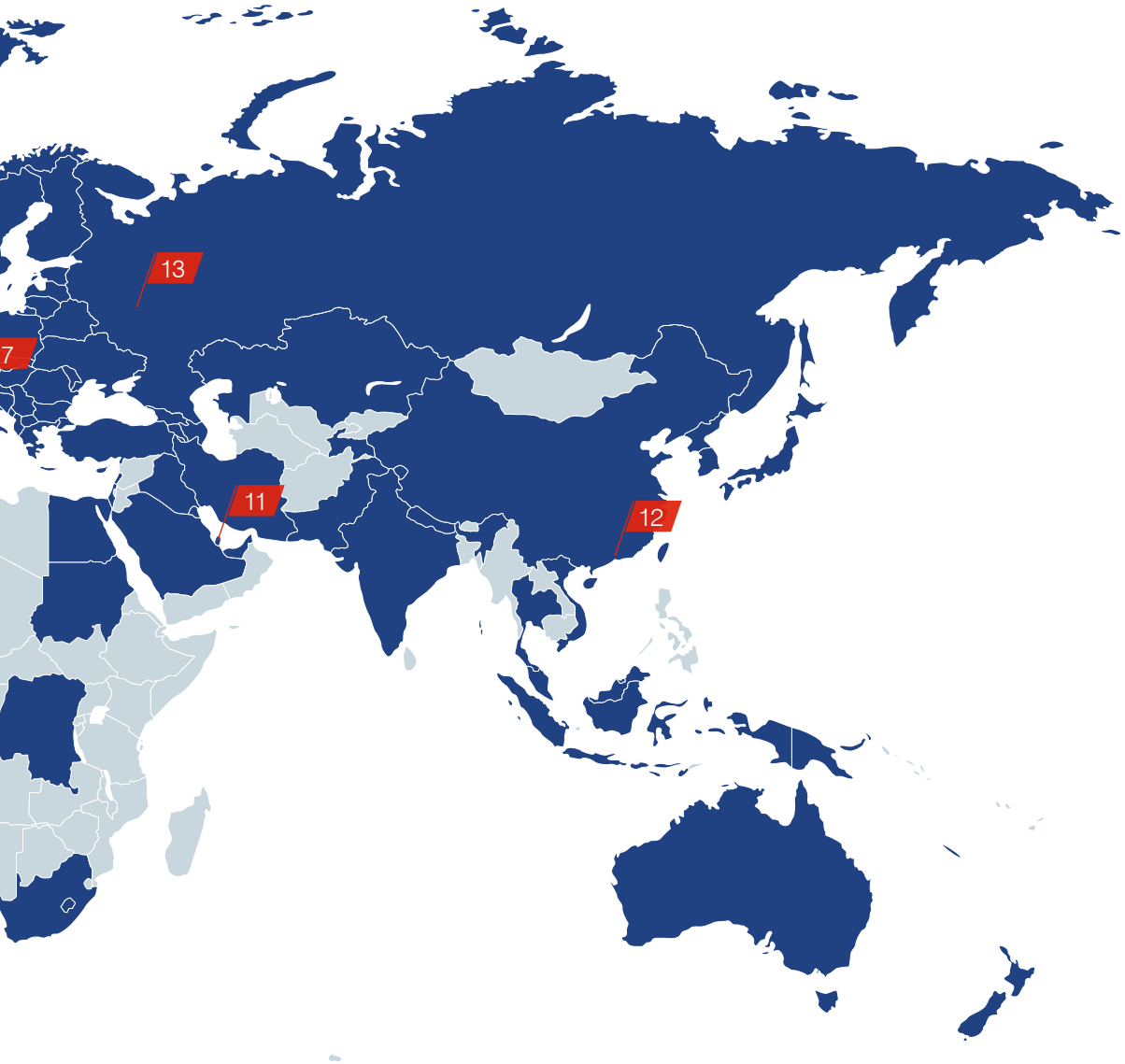
Maximum technical and business certainty during system operation

- Accredited international experience in safely and reliably managing critical infrastructure for customers.
- Preventive and corrective maintenance to minimize downtime and operational risk.
- Capital Asset Replacement Program (CARP) for major components and subsystems to maintain asset value.
- Custom software suite to track O&M performance transparently and accurately.
- Full customer oversight over the execution of the contracts.



Operations Services References

	Installation
1	Las Vegas Mandalay Bay Tram, USA
2	Birmingham International Airport Air-Rail Link, GBR
3	Toronto Pearson International Airport Terminal Link, CAN
4	Mexico City International Airport Aerotrén, MEX
5	Las Vegas CityCenter Tram, USA
6	Teleférico Barrancas del Cobre, MEX
7	People Mover Venezia, ITA



	Installation
8	Emirates Air Line, GBR
9	Caracas Cabletren Bolivariano, VEN
10	Oakland Airport Connector, USA
11	Doha Hamad International Airport Passenger Train, QAT
12	Wynn Palace Sky Cab, MAC
13	Moscow Sheremetyevo Airport Inter-Terminal Transit, RUS
14	London Luton Airport Direct Air-Rail Transit, GBR

Doppelmayr®

719/eng/dcc/dra/022020/300

Doppelmayr Cable Car GmbH
Konrad-Doppelmayr-Str. 1
6922 Wolfurt / Austria
T +43 5574 604 1230
dcc@doppelmayr.com
dcc.at