ROPEWAYS IN URBAN TRANSPORT
Challenges for urban mobility

Ropeways as a solution to traffic gridlock
Many cities are struggling today with massive traffic problems and road congestion. The general public suffers, with traffic jams, noise and poor air quality.

The road network can barely cope with the huge volume of traffic. In downtown Bangkok, Manila and Shanghai, for instance, the average speed on weekdays is just ten kilometers per hour¹.

Innovative, environmentally friendly solutions are needed. One solution is to create a new level using rope-ways – relocating the flow of traffic from ground level to the air.

¹ SOURCE: https://green.wire.de/megaproblem-verkehr-und-wie-es-in-den-staedten-zu-loesen-is/ (18/05/2016)
What is a ropeway?

A ropeway is a rope-assisted means of transport.
Monocable ropeways (GD)
Monocable detachable gondola lifts have one rope which acts simultaneously as a carrying and hauling rope. Passenger boarding and deboarding areas can be comfortably passed through at low speed; at the same time, the system has a high transport capacity. Monocable ropeways are becoming an increasingly common expression of contemporary urban mobility.

Transport capacity: up to 4,500 pph
Speed: up to 6 m/s
Carrier capacity: up to 10 pers.

Multiple cable ropeways (BD & TD)
Bi- and tricable ropeways have one hauling rope, and move on one or two carrying ropes. They feature detachable grips, offer a very high transport capacity, guarantee outstanding stability in windy conditions and are able to span considerable distances.

Transport capacity: up to 6,000 pph
Speed: up to 8.5 m/s
Carrier capacity: up to 35 pers.
What makes ropeways ideal for urban areas?
Modern ropeways can solve many contemporary traffic problems: they can be set up quickly and at relatively low cost, require little space, and with low energy costs and low emission levels they offer a sustainable reduction in environmental impact. In addition, according to the Federal Statistical Office Wiesbaden (Germany), ropeways are among the safest forms of transport. In the urban environment, aerial ropeways in particular are specifically used to provide access to sensitive recreation areas. The ropeways touch the ground only where the towers stand, therefore causing minimal interference with the natural characteristics of the area. Urban cable-hauled transport systems thus offer not only great views for the passengers in the cabins, but a great outlook for the future.

SOURCE: Statistisches Bundesamt Wiesbaden 2011
Benefits of a ropeway at a glance

**Low space requirement**
Ropeways even provide advantages during their construction, which can be especially important in densely-built urban areas. Towers and stations take up relatively limited space, and the ropeways optimally integrate into the cityscape.

**A great view**
Passengers enjoy an unrivaled view during their journey. This also makes ropeways attractive for tourists, and creates an additional source of revenue.

**Clearing obstacles**
Being airborne, ropeways can clear obstacles.

**Exclusive route**
There is no conflict with other traffic, as the ‘carriageway’ is used exclusively by the ropeway.

**Consistent travel times and continuous transportation**
The exclusive ropeway line in the air guarantees consistent travel times, as the ropeway is not hindered by road traffic. Passengers are transported continually – with no timetable and no waiting times.

**Quick to build**
Right after the order, ropeways can be constructed over a short period of time. This is mainly possible thanks to the use of a modular construction.

**Handle steeper slopes than any other vehicle**
Ropeways can handle steeper gradients than any other vehicle and are fit for use in any terrain.
Small capital investment and operating costs
Compared to other transport systems, ropeways offer relatively low investment and operating costs. The costs of a ropeway system amount to approximately half those of a streetcar, and about 1/10 of the costs of a subway.

Accessibility
Boarding and deboarding is accessible in all cabins (level walk-in). The cabins move through the stations at a very low speed, allowing easy boarding and deboarding. With Stop-and-Go technology, the cabins can also be brought to a complete halt for a short time. Bicycles and baby strollers can be carried in all cabins.

Safety
Compared to other means of transport:

<table>
<thead>
<tr>
<th>Transport Type</th>
<th>Average Accident Rate (per km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft</td>
<td>1 accident per 113 million km</td>
</tr>
<tr>
<td>Ropeways</td>
<td>1 accident per 17.1 million km</td>
</tr>
<tr>
<td>Passenger car</td>
<td>1 accident per 1.46 million km</td>
</tr>
<tr>
<td>Railroad</td>
<td>1 accident per 1.31 million km</td>
</tr>
<tr>
<td>Bus</td>
<td>1 accident per 616,000 km</td>
</tr>
<tr>
<td>Streetcar</td>
<td>1 accident per 225,000 km</td>
</tr>
</tbody>
</table>

In terms of total transport numbers, ropeways are the safest means of transport.

Architecture
Architects have plenty of creative scope in designing the ropeway stations, and have a say in the design and coloring of the towers and the appearance of the cabins. One impressive example of this is the Hungerburgbahn in Innsbruck, the stations for which were designed by star architect Zaha Hadid. The rounded, milk-white glass domes mirror the alpine landscape around Innsbruck. On the other hand, the eye-catching design of the MiniMetro in the Italian city of Perugia creates a conscious contrast to the medieval city.
The urban ropeway
A unique means of transport
The urban ropeway constructed 12 years ago in Medellin (Colombia) was a success, and quickly led to further systems being constructed in other cities. Urban ropeways are now also in use in Europe and Asia. Experience shows that wherever topographical obstacles such as rivers or inaccessible terrain threaten to put the brakes on vehicle movement, urban ropeways offer the ideal transport solution.

In addition, compared to a subway or urban railway system, they can be set up very quickly and in comparison with conventional means of transport, they entail relatively low investment and operating costs.

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It’s no longer only winter sports enthusiasts that are on the move with systems from LEITNER ropeways. This long-established South Tyrolean company enjoys global success with its high-tech ropeways. Alternative applications are increasingly in demand. This mainly comprises passenger transport in urban environments and transportation to tourist attractions, but systems are also used for material transport. LEITNER ropeways combines cutting-edge technology and superior quality with sustainability, premium design and individualized customer requirements.
LEITNER ropeways rigorously focuses on superior quality and offers maximum comfort for passengers and ultimate product quality for the operator.

**Superior Quality**

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**Premium Design**

The long and successful partnership of LEITNER ropeways and PININFARINA has reached its pinnacle in the design of the new 3S cabins. These cabins bear the unmistakable style of renowned Ferrari and Maserati designer PININFARINA. The design is both esthetically pleasing and functional.

**Leading-edge technology**

Through technological innovations, LEITNER ropeways creates excellent conditions for success, such as the LEITNER DirectDrive system – unique within the industry, these systems run much more quietly and consume less energy.

**Sustainability**

Eco-friendliness and sustainability are values that enjoy the highest priority. LEITNER ropeways maintains an environmental management system certified in accordance with ISO 14001. Throughout the LEITNER group of companies, sustainability plays a major role, as also evident in products such as the LEITWIND wind turbines.

**Individuality**

The diverse needs of customers are fulfilled by innovative, individualized solutions. Individualized and innovative solutions from LEITNER ropeways turn a ride into an experience. The corporate design of the destination can be seamlessly integrated into the ropeway itself.