

MULTI

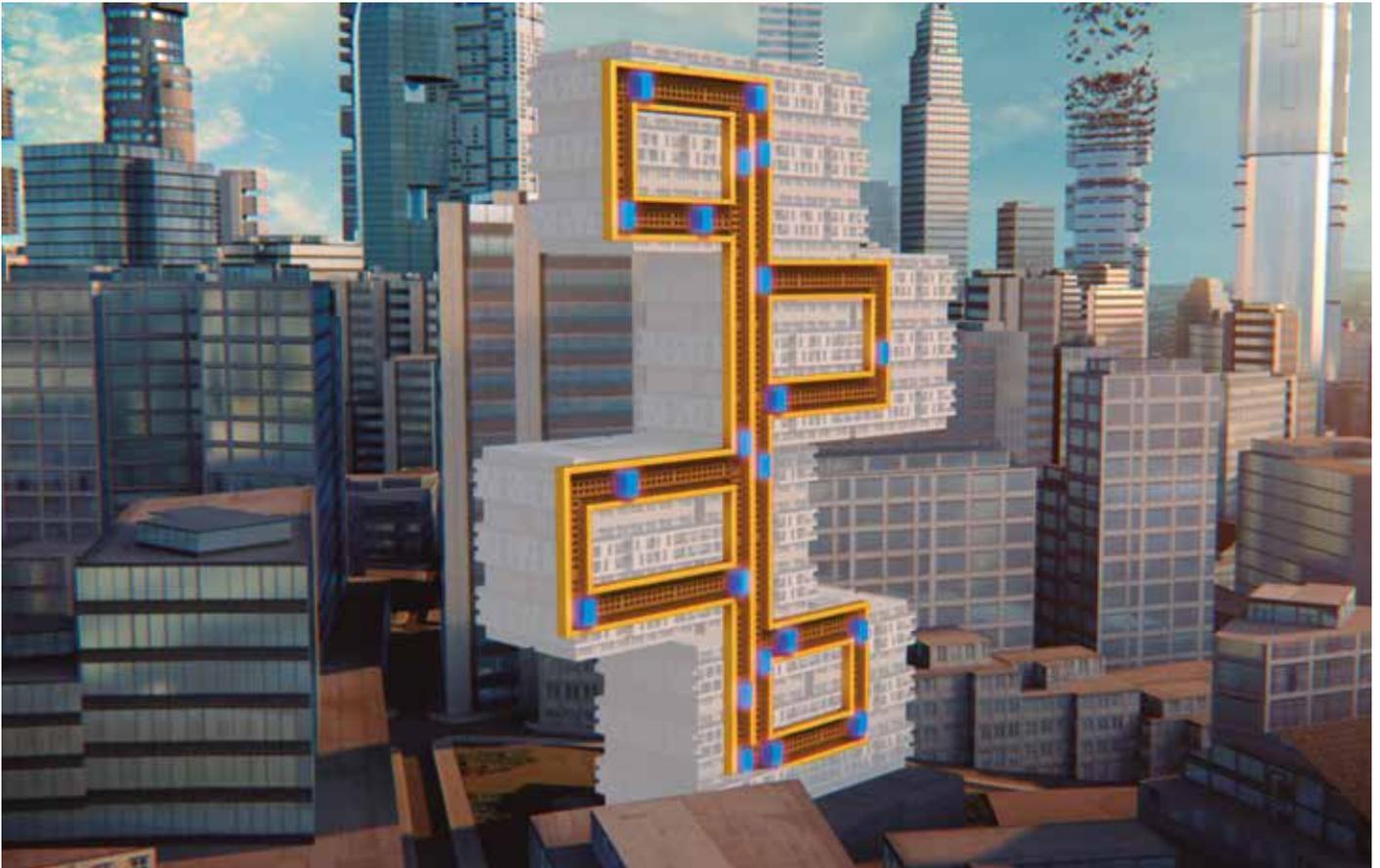
A new era of mobility
in buildings



thyssenkrupp



An urban evolution



While more than half the world's population already lives in urban areas, there is expected to be a 2.5 billion increase in urban population numbers by 2050.

With severe restrictions on space, mid to high-rise developments have proved to be the most economically and environmentally viable developments to accommodate these rapidly growing urban populations; in addition to occupying less soil, essential to secure green areas for the city, they also allow for centralized intelligent control of energy.

Besides the number of tall buildings increasing, their average height is also surpassing past expectations. However, while the means to build taller buildings exists, without the ability to efficiently move the inhabitants of buildings between floors the functionality of skyscrapers is limited.



The equivalent of a 1-million people city is being built every day. Since 2000 the number of high-rise buildings (taller than 200 meters) has tripled. Over 180 buildings currently under construction are above 250 meters.



By removing ropes and equipping with linear motors, elevators will be transformed completely – increasing capacity by 50 % and reducing the elevator footprint within a building by half.

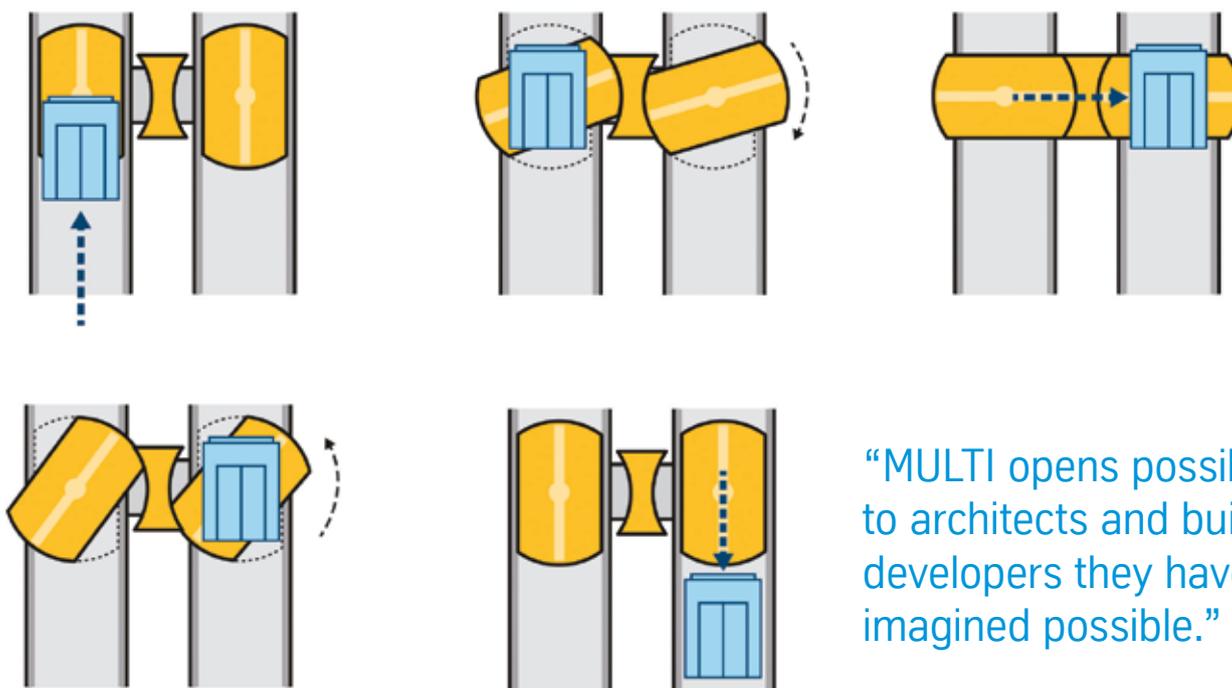


A 2013 paper on two-dimensional elevator traffic systems likens the use of one cabin per elevator shaft to using an entire railway line to connect two cities with a single train - a clear waste of resources.

A technological revolution

MULTI achieves the Elevator Industry's Holy Grail: It enables the operation of multiple cars in a single elevator shaft, combined with horizontal shaft-changing cabin systems

The era of the rope-dependent elevator is now over, 160 years after its invention. Building design will no longer be limited by the height or vertical alignment of elevator shafts. The exchange system allows 90° turning of the linear drive and guiding equipment, which opens possibilities to architects and building developers they have never imagined possible.



How does MULTI work?

thyssenkrupp MULTI applies the linear motor technology developed for the magnetic levitation train Transrapid to elevator cabins, enabling them to move in shafts in the same way that trains move in rail systems, with various cabins per shaft, and permitting vertical as well as horizontal movements inside buildings. Safety is ensured by the multi propulsion and braking systems in the cabins, and the well-proven safety control system developed by

thyssenkrupp for the TWIN elevator technology prevents cabins from getting too close to each other inside the shafts.

MULTI includes new elements such as new and lightweight carbon composite materials for cabins and doors, weighing a mere 50 kg instead of 300 kg in standard elevators, resulting in an overall 50 % weight reduction as compared to standard technologies.

MULTI

the concept

MULTI is the solution that reduces footprint, doesn't limit the shape or height of buildings, offers short waiting time for passengers and is flexible in adopting different traffic concepts.

Operating on the basic premise of a circular system, such as a paternoster, MULTI will use rope-less linear technology to operate elevators, and a single loop can incorporate various cabins.

“The test tower will be completed at the end of 2016, and by this time, the company aims to have a running MULTI prototype.”

MULTI's research and development phase has reached the point of building the first model and prototype, and thyssenkrupp's new test tower in Rottweil (Germany) provides the perfect test and certification environment to get this ground-breaking product onto the market.



Welcome to the future

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Conventional elevator

Traditional elevators in tall buildings require a large footprint and waste leasable space.

Double-decker elevator

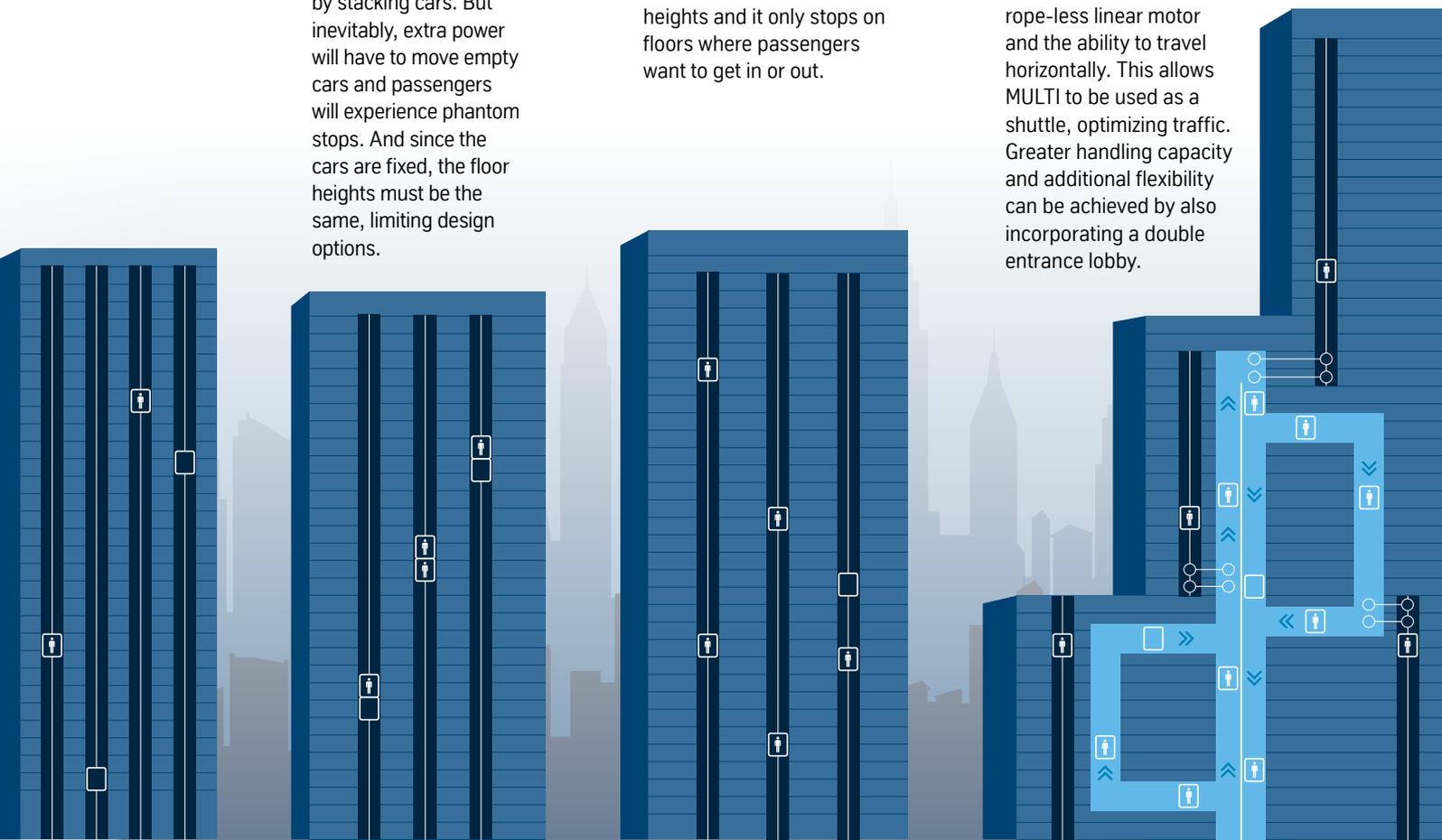
Move more people by stacking cars. But inevitably, extra power will have to move empty cars and passengers will experience phantom stops. And since the cars are fixed, the floor heights must be the same, limiting design options.

TWIN, two cabins in one shaft

TWIN is more efficient because of independent operation of the cars, so that you can park cars if not in use. The flexible system works with different floor heights and it only stops on floors where passengers want to get in or out.

MULTI

In addition to the many advantages offered by TWIN, we have included a rope-less linear motor and the ability to travel horizontally. This allows MULTI to be used as a shuttle, optimizing traffic. Greater handling capacity and additional flexibility can be achieved by also incorporating a double entrance lobby.



Elevator Technology

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