



# Schindler Ahead

Smart Urban Mobility

## Schindler Ahead:

The **IOT** based digital platform “**Schindler Ahead**” is the world’s first digitally connected closed-loop maintenance, emergency and information system for **elevators** and **escalators**. The real-time insights with powerful machine learning supported system offers a predictive maintenance service for customers. It increases the availability of the units (**Uptime**) and accelerates product development. In addition, Schindler Ahead enables customers, service technicians and customer contact centres to access information (**Insights**) in real time and a range of personalized solutions ensures greater **Convenience** for passengers. At the centre is the “**Ahead Cube**” a smart communication gateway installed on each connected unit. The Ahead cube runs analytics and transmits data with over-the-air (OTA) functionalities.



## Digital Solution Tailored to customer needs



### CUBE

#### Machine Intelligence

With the CUBE the equipment (Elevator/Escalator) becomes smart and connected. Relevant machine data like door movement or lifecycle utilization are collected, pre-analysed, and transmitted to the Cloud Platform. And more, the CUBE runs apps, streams multimedia content, and even handles emergency voice calls. Always secure.

#### Digital Connectivity

The CUBE supports latest connectivity standards like 4G/LTE as well as future VoIP functionality. So, it will be ready when telecommunication providers will discontinue 2G support as already happening in many countries. The CUBE also provides standard interfaces for building integration.

#### Much more than a Gateway

The CUBE runs apps, streams multimedia content and even handles emergency data and voice calls.

### Edge Computing and Edge Analytics

Computing power and intelligence of the CUBE allows real-time analytics, data filtering and knowledge generation at the source of the data. This significantly reduces the volume of transferred data to the cloud and helps to optimize the communication cost.

### Digital Industrial Cyber Security

Connectivity and technology components are protected with the highest level of built-in Hardware and Software security through our industry-leading partners. In addition, 24/7 Security Monitoring is conducted worldwide. Over-the-air Software updates ensure that latest security patches can quickly be deployed.

### Code Compliance

The CUBE is fulfilling global and local elevator & escalator standards and norms as well as all required certifications, e.g. for lift emergency call systems.



### CLOUD PLATFORM

#### Real- Time Insights

Our Cloud Platform is the engine for Big Data analytics and Artificial Intelligence. In combination with the leading GE Predix solution we gain powerful insights through advanced analytics and machine learning. Data turn into actionable outcome like Predictive Maintenance.

#### Powerful Insights

Machine data generated from elevators and escalators combined with data from Schindler's global operations platforms are turned into powerful insights when Advanced Analytics and Machine Learning is applied. The Schindler Ahead Cloud Platform is the engine behind, powering the analysis and correlation of these big data for actionable outcome like best-in-class Predictive Maintenance.

#### Fast and Vast

Our digital industrial Cloud-based Analytics is capable of handling volume, velocity and variety of industrial big data collected by millions of data from equipment electronic controllers and sensors.

### Powered by GE Predix

Schindler Ahead is powered by GE Predix, the industrial operating system developed by our premier partner GE Digital. With GE Predix the elevator & escalator industry benefits from industrial sectors having already successfully applied the Industrial Internet for many years. Digital industrial expertise paired with leading-edge Software capabilities.

### Open Innovation

Our Cloud Platform supports open industry standards and benefits from an ecosystem of partners who contribute to enhanced application development and innovation for smart urban mobility solutions.



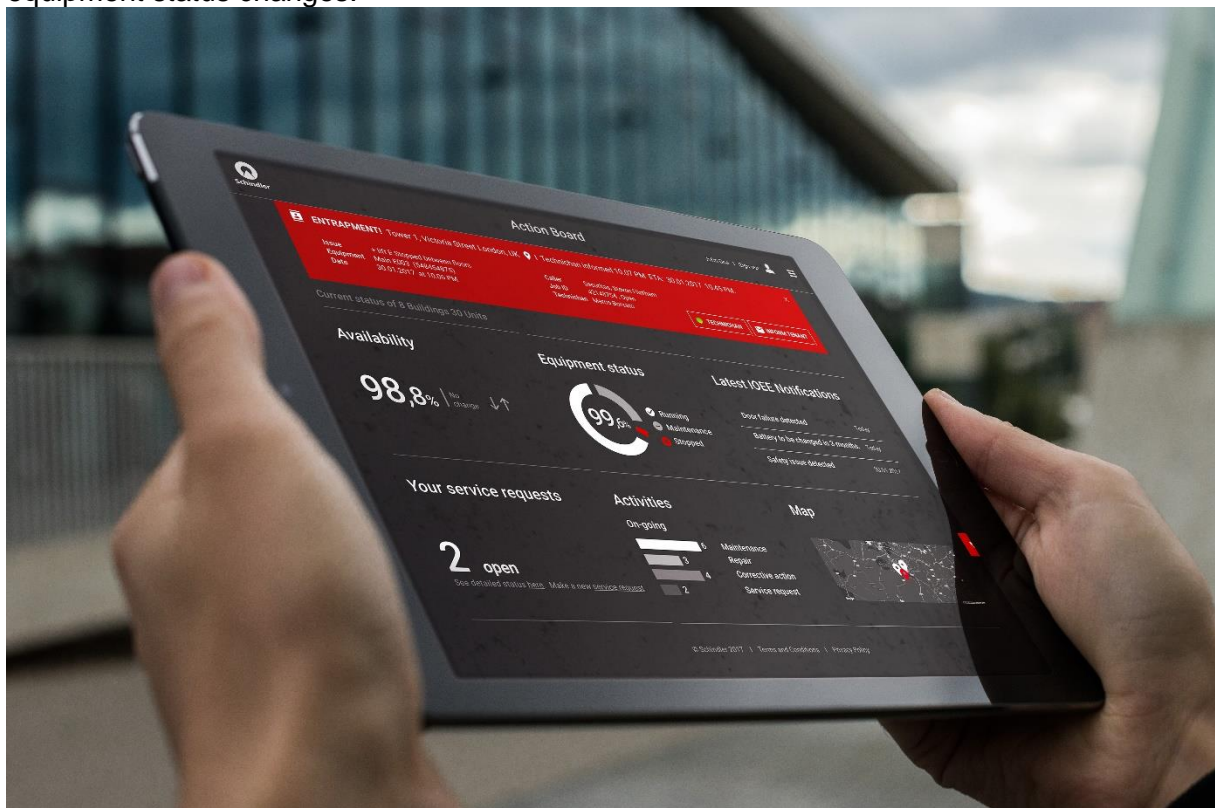
### APP STORE

#### Instant Access

A variety of apps for customers and passengers made available. Access relevant information in real-time, gain comprehensive insights or experience improved comfort and convenience. On your smartphone or via Internet Portal. Personalized and customizable to customer's needs.

#### Ahead ActionBoard

Turn information into action. The Schindler ActionBoard shows status, ongoing activities, performance indicators and usage statistics of your equipment portfolio. Act in real-time on events and define who of your tenants and partners will be informed automatically on equipment status changes.



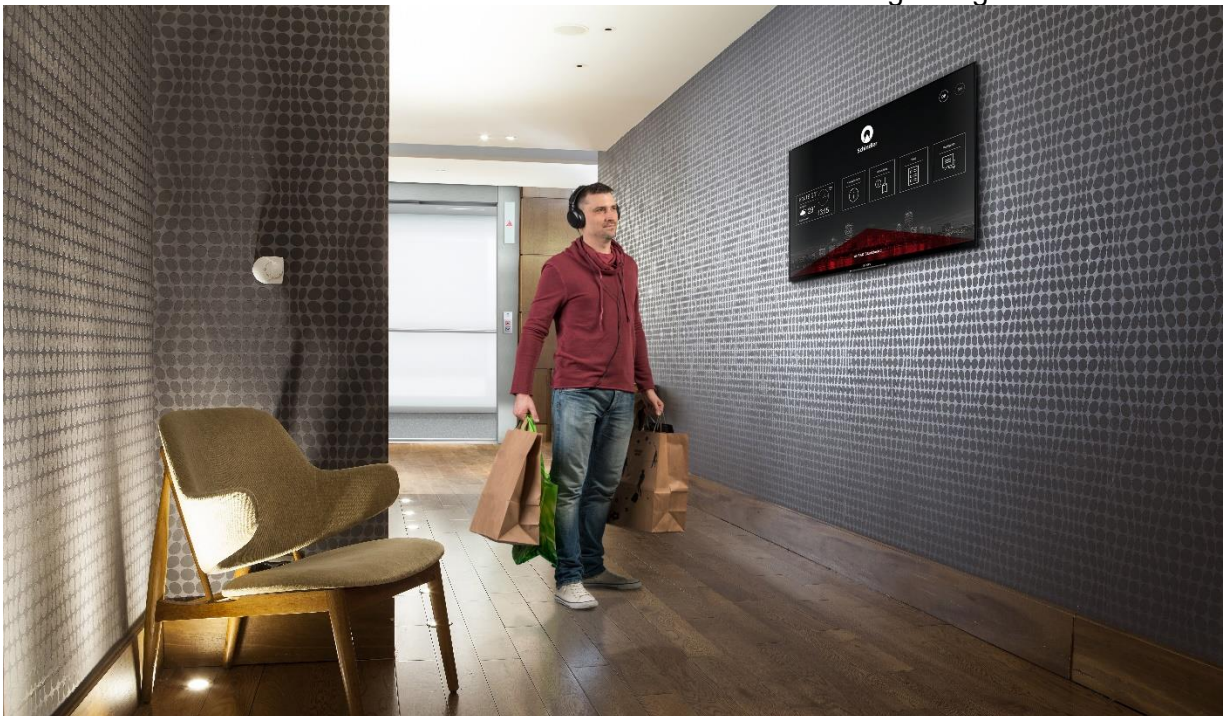
### Ahead LogBook

Digitally manage equipment documentation including certificates, drawings and manuals. The web-based Schindler Ahead LogBook allows you to share seamlessly all necessary information with technicians and notified bodies.



### Ahead Blackboard

Share the latest building and neighbourhood news. The Schindler Ahead Blackboard is a display platform located outside of elevator and escalator areas and is used to provide information on activities relevant for building tenants. Additionally, it can display local advertisement related to available services in and around the building's neighbourhood.



## Schindler Field Link

Benefit from a digitally equipped workforce. Schindler's award-winning Digital Tool Case Field Link provides service technicians with all necessary information for proactive and high-quality service.



## FUTURE READINESS

### Over-The-Air (OTA) Updates

Over-the-air updates from the App Store to the CUBE allow you to always stay up to date without having a service technician coming onsite. So, you can benefit from Schindler's continuous investment in enhancing and shaping smart urban mobility solutions.

Industry-first secure Software updates for all Schindler Ahead apps and downloading of new apps to the CUBE so that customers equipment and customer will always stay up to date.

### Protect your Investment and benefit from Schindler's Innovation Drive

The Ahead App Store allows you to start today and to upgrade as you go. Download and customize additional urban mobility apps developed by Schindler and its partners.

### Open Platform

With its open API (Application Program Interface) architecture, Schindler Ahead provides you access to a broad ecosystem of useful tools and applications.

### Ahead Advertising

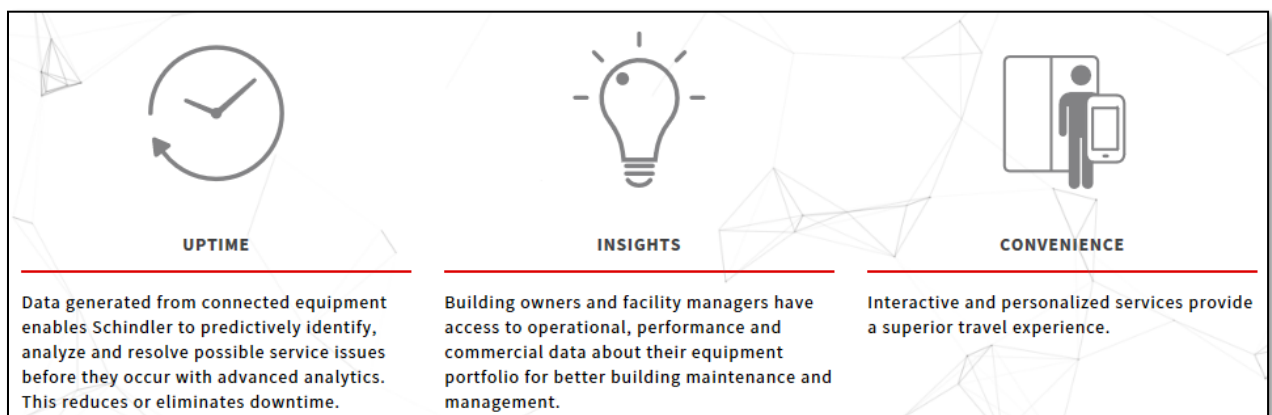
Inform, engage, entertain

With our innovative advertising solution for elevators and escalators, display engaging multimedia content for your passengers and generate new revenue streams through digital advertising. Ahead DoorShow.



**Benefits Achieved:****The internet of Elevators & Escalators; Connecting the dots.**

The platform where all involved parties are connected, and necessary information is shared in real-time. Schindler Ahead connects equipment, customers, passengers with Schindler Contact Centres and technicians via its digital closed-loop platform.

**Turning Data into Benefits**

### **Benefits for Building Manager / Owner / Developer**

- High reliability and uptime improve overall building performance
- Insights about component lifetime allow for mid-term planning like repairs or modernization needs
- Complete digital documentation of equipment portfolio
- Ready for the upcoming switch from analogy to digital networks
- 24/7 digital emergency service
- Future-proof solution thanks to 'over the air' updates
- Increase the value of your building by connecting to the Internet of Elevators & Escalators

### **Benefits for Facility Manager / Administrator**

- High reliability and uptime with fast reaction times thanks to predictive maintenance
- Real-time information on equipment status and performance
- Full transparency on status of maintenance work thanks to push notifications via app, text message or email
- Less hassle thanks to keeping tenants automatically informed on your behalf.

### **Benefits for Passengers**

- Reduction of waiting times and higher reliability.
  - Passengers remain informed about equipment status and maintenance work via app, text message or email.
  - Increased convenience and comfort thanks to interactive and personalized information and entertainment.
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**Schindler**