Smart solutions for smarter, greener cities

Efficient public transportation systems are key to drive cities towards a sustainable future. Smart and green cities will upgrade and expand their public transport. Technology will make it easier for more people to use public transportation by helping passengers plan their trip, travel and stay updated; drivers do a good job and public transport authorities ensure quality and control. Public transport authorities need to stay at the cutting edge of technology.

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Resume
By 2050, 80% of the world’s projected nine billion citizens will live in urban areas. For people to move effectively, improve their quality of life and reduce greenhouse gas emission, smart and green cities will upgrade and expand public transport. In old Norse language, FARA means to travel. In addition to a history of long voyages, the Nordics have been one of the regions to first adapt technologies, including travel solutions for smart phones and tablets. These technologies can help cities stay at the forefront of increased public transport.

Cities of the future
Cities are growing faster than ever before. By 2050, 80% of the world’s future population of nine billion will live in urban areas. This will require an increasingly sophisticated public transportation system.

With cities being responsible for 75% of the global CO₂ emissions, and 40% of all road transport CO₂ emissions coming from urban transport, there is an urgent need to replace the personal car with expanded public transportation systems. If more people use public transportation instead of cars, we can reduce the amount of harmful emissions and contribute to better air quality; both for the sake of the environment, and for the sake of personal health. To get there, public transportation must become the preferred method of travel. But how can we make this happen?

Meeting high expectations with technology
There has been a vast technological revolution over the last decades. With smartphones becoming increasingly popular, people immediate responses, timely updates and access to information. Technological innovations have not only changed the way we wish to communicate, but also the way we wish to travel. Large complex maps and paper tickets have been traded in for GPS, 4G and mobile applications. It is important that we meet these expectations if we want more people to use public transportation.

Help the driver
Every great journey depends on a great driver who gets passengers to their destination safely and on time, who informs passengers about deviations and can easily sell tickets. To help bus drivers do a better job, we created SMART:myDrive. It lets bus drivers see their whole route, whether they are on schedule, and plan accordingly—all on a tablet. This can also be used for quick
Empower the passenger
Empowering the passenger is the key to making public transport the preferred form of travel. Today there are about two billion smartphone users, a number that is likely to increase. Smartphone users have high expectations. They want to access information easily, get timely updates and use the smartphone throughout the journey. Route planners, electronic ticketing and journey updates are just some of the features that help create a more convenient and seamless travel experience for the passenger. We have decided to call this solution SMART: myTravel.

Use data to ensure operational quality and control
Transit companies, fleet operators, personnel, and transport operators all need to work together to ensure effective and well-managed public transport. As the demand for public transport increases, accurate reports from all parts of the journey are required to ensure that the traffic flows. SMART: myOperation provides all the different parties with real-time information and reports so that public transport can be effectively monitored, capacity can be increased when demand requires it, and unexpected events can be handled quickly. If a bus is running late, traffic light priority ensures better control on punctuality. Extensive statistics and analysis helps operators decrease the number of late buses in the first place.

Work with real-time and accurate information, and together
To optimize the functionality of all our IT solutions we have moved them to the cloud. SMART: myCloud provides increased flexibility, security and scalability of traditionally very expensive and cumbersome service solutions. Cloud computing allows users to access information anywhere and any time, and makes the data readily equipped for any future adjustments.

Looking to Oulu
Oulu is one of the most populous and technological advanced cities in Finland. It is one of the first cities to implement all the components of this sophisticated information system, and has signed a contract to maintain the system until 2021. In Oulu passengers can track their public transport live, and see where the bus is at any time on screens at 41 bus stops. 140 buses send accurate location updates every second to the display screens, public transport authorities, traffic controllers and traffic contractors. Information is provided in real-time showing expected delays, arrival and departure times. This information creates a seamless travel experience for the passenger, and enables the operator to monitor, control and improve the service.

The drivers are also equipped with 7” tablets where they can select their next journey, see their progress and receive information about staying on schedule. The tablet gets its location from GPS and Glonass satellites and sends this to the central system using the 3G network. Messages about service interruption can also be sent straight from the vehicle to the bus stops.

Another valuable feature is traffic light priority. By giving buses that are late at intersections priority helps them keep the service on schedule.

In Oulu this open source is now integrated into a single traffic information service for all transportation modes, called www.Ouluniiken.fi. This web site uses the travellers’ location to provide route guides, and gives up-to-date information about traffic conditions, delays and connections to flights and trains.

How does SMART create better cities?
The more car travel is substituted with public transportation, the less greenhouse gas emissions there will be, the city will become greener. If we want to meet future demand, while also taking care of our urban environment, we need to listen to the market demands and develop technological innovations. When combined, the various SMART solutions create a seamless journey for the passenger, driver, operators – today and tomorrow. We need more cities like Oulu. Cities where convenience makes it easier for all of us to make the right default decision – to choose public transportation.