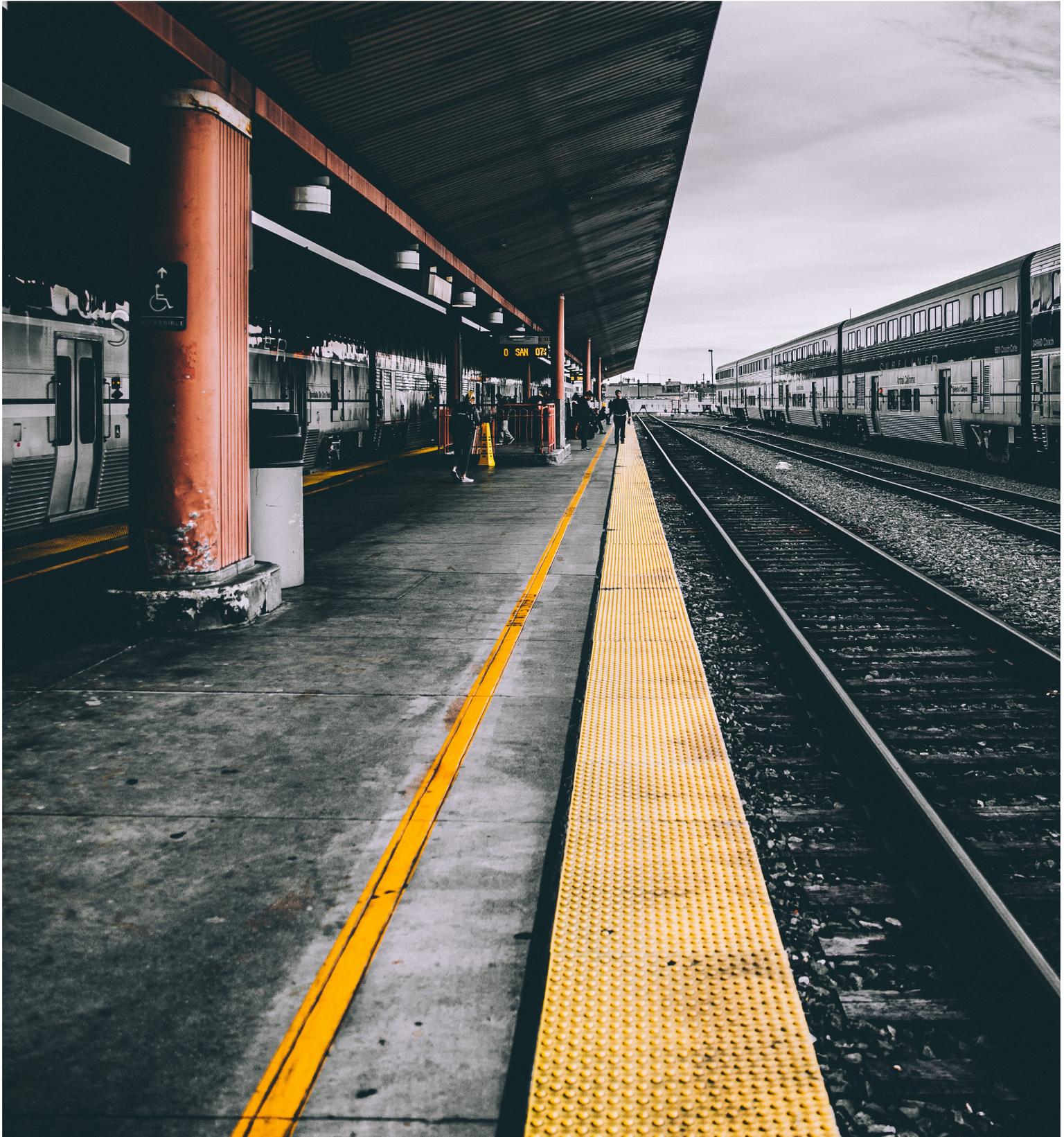


guide.

Mastering digital transformation in public transport.





What it will take to regain control of your digital destiny and drive sustainable public transport usage.

What it means to be in control of your digital destiny

In a digitalization survey conducted by the International Association of Public Transport (UTIP), 50% of the transport operators surveyed said that customer benefits were an essential reason for having a digital transformation strategy. The same survey found that 58% of respondents already had a digital strategy back in 2018. These figures show that many public transport companies recognize the importance of digital transformation.

However, McKinsey & Company discovered that less than 30% of digital transformation projects succeed. Have you stopped to consider why that is the case? And why public transport operators in specific tend to struggle to get their digital transformation initiatives off the ground despite the best of intentions?

Sustainability goals have become more urgent and driving more sustainable public transport use is an important way of meeting them. To do that, you need the capability to capitalize on three key public transport megatrends: open payment systems, mobility as a service and data-driven planning. All three require digital transformation, which you can accelerate by regaining control of your digital destiny.

Your digital destiny is your ability to directly control, manage and accelerate digital transformation projects. Merely procuring a complete system does not give you enough flexibility and control. As a public transport operator, you aren't necessarily an expert at specifying system requirements down to the smallest detail. By the time the system is implemented, the technology may already be outdated, and the result might be far from what you expected – after years of waiting.

*62% of public transport operators reported a **shortage of employees with accurate digital expertise** – UTIP digitalization survey*

Instead of procuring a system, you can take control of your digital destiny by procuring digital expertise, adopting agile processes and establishing a digital technical foundation. In terms of expertise, you'll need data scientists, software developers, digital product owners and people with similar skills. In terms of a foundation, you'll need greater agility and processing power to support AI-powered data analytics and agile application development. Explore the potential and digital requirements of the three megatrends and what it will take to reclaim control over your digital destiny and succeed with digital transformation.

Three public transport megatrends that demand digital transformation

Streamlined payment processes, combined mobility platforms and more efficient public transport planning will be gamechangers for the public transport of tomorrow. They sound great, but do you know what it will take to realize their potential? Let's take a closer look at their underlying trends and learn how.

1. Open payment systems

For centuries, rail, bus and other public transport passengers have usually had to decide on an exact departure and arrival location, choose the right type of ticket and pay before beginning their journey. These days, the customer experience bar has been set higher, and people sometimes resort to using their cars instead of public transport because...

- they haven't had time to plan every stop they want to make in advance,
- they're confused about ticket types (such as which one allows them to bring along their children on a round-trip excursion), or
- the ideal commuter train will already have left by the time they finish buying their ticket from a vending machine.

These types of issues are examples of how bottlenecks in the planning and ticketing process can cause unnecessary customer experience problems in public transport and discourage its use. This is problematic considering that sustainability goals have become more urgent. But if travellers could simply ride now and pay later with an open payment system, they could avoid many of these bottlenecks and use public transport more.

***88%** of public travellers saw **saving time** as the greatest benefit of ticketless travel and **76%** believe this would **encourage drivers to start using public transport** – “Future of Public Transport” a survey conducted by Accenture*

For example, tap and ride is a groundbreaking way of simplifying payment and enabling a post-pay world. Being able to simply tap a card or smartphone when you get on the bus or train and trust you will be charged fairly afterwards makes a huge difference. Combining tap and ride with capping models (a maximum fee per day, week or other period) would allow for more flexible itineraries requiring less advanced planning and preparations. This would save much time for travellers and empower more people to simply hop on the bus and figure it out as they go along.

However, to enable open and flexible ticketing and payment, you'll need digital applications that can accurately plan routes and streamline the ticketing and payment processes. Getting these applications and processes right will require deep insights into rider preferences and usage patterns and the digital capabilities to design applications accordingly.

2. Mobility as a Service

Another major obstacle to more sustainable transport usage has been the challenge of the first and last mile. Many travellers have stuck to their cars simply because the bus stop is too far from their residence, their office or another location. However, Mobility as a Service (MaaS) has been increasingly trending as a way to solve this problem. Ride-hailing services like Uber and microservices like electric scooters and rental bicycles are now making it possible to bridge that first and last mile gap.

More efficient and sustainable mobility has the potential to save as much as USD 70 trillion by 2050 – the World Bank’s “Global Mobility Report 2017”

However, a combined mobility platform with all relevant and available modes of transport combined into a single, seamless route selection and payment process for the commuter will be the real game changer. Having to combine separate train, bus and taxi bookings without being able to plan their trip across all modes of transport makes for an unnecessarily complex and poor customer experience. Solving this and making a combined mobility platform possible requires more open data, integration-friendly applications and greater scalability.

UTIP’s “Ready for MaaS” policy brief recommends that public authorities invest in digital solutions that promote integration and openness.





3. Data-driven public transport planning

These days, most public transport operators are sitting on a big data gold mine – everything from real-time traffic information from thousands of vehicles to detailed travel and commute patterns. However, many operators have not come close to realizing the full potential of this data. For instance, if you analyse route search patterns in your customer app, you might find that many travellers are looking for commutes from and to the same locations but there is no direct route. This insight could lead to a new route that would be effective in cutting travel time for these commuters and would be used plenty enough to be considered environmentally and financially efficient.

There could be many more insights hiding in that big data gold mine of yours, but with so much data, you would be hard pressed to analyse and process it all manually to find the gems. This is where AI-powered data analytics platforms and machine learning algorithms come into play. With the right digital capabilities, you can significantly improve the customer experience and add social value. For instance, this would allow you to provide personalized traffic information as well as information on predicted delays or occupancy levels on vehicles.

You could also greatly increase the efficiency of replacement bus deployments for stalled trains. For example, real-time data analytics could tell you that many passengers have the same final destination – a suburb 20 km away from the next station for the stalled train. So instead of only sending replacement buses to take everyone to that station, you could also deploy a direct bus from the train to the suburb. These examples are just the tip of the iceberg of what is possible if you develop the digital capabilities to fully capitalize on your data.

What it takes to succeed with digital transformation

To get ready to capitalize on the three public transport megatrends explored above before it's too late, you'll need to accelerate digital transformation, including the digital development of new applications, a more open data platform and AI-powered data analytics. This naturally points to the cloud, but some public transport operators worry about the compliance implications.

Can cloud-based platforms be used to drive digital transformation in the public sector without breaching the GDPR and national legislation, like the Public Access to Information and Secrecy Act in Sweden? The answer is an emphatic yes – if you know what you are doing and have the right policies in place. Below you'll learn more about those policies, but first let's start with some fundamental requirements for digital transformation.

The Fundamentals of digital transformation

Digital transformation is about using digital capabilities to transform the way you operate. There are three iterative steps to getting started with and accelerating digital transformation:

- 1. Establishing a digital foundation** – unlock unmatched processing power, scalability and AI capabilities with the cloud
- 2. Exploring digital possibilities** – leverage the minimum viable product (MVP) model, prototyping and design thinking.
- 3. Accelerating digital initiatives** – employ DevOps, automation and agile methods.

Throughout your digital transformation journey, you should also ensure your initiatives are on track to add tangible value by setting clear goals. Align these goals and measure your progress using the three building blocks of digital transformation:

- 1. Customer experience** – How well you understand passenger needs and streamline passenger-facing processes and touchpoints.
- 2. Operational process** – How well you digitalize processes, drive performance improvements in internal operations and empower employees.
- 3. Business models** – How well you adopt agile ways of working to optimize products and services and to accelerate innovation

It's important to be clear about what you want to achieve with your digital transformation. Do you want to make it easier for passengers to search for public transport routes and pay with a customer app? Open the door to combined mobility with an open data platform? Or do you want to plan public transport routes in a more data-driven manner with AI-powered analytics?



The importance of digital transformation in the new normal

Public transport faces major challenges in the wake of COVID-19. The future of travel is highly unpredictable, and the number of public transport passengers have dropped sharply around the world due to both government restrictions and individual precautions. In Scandinavia, we have regional politicians and officials calling for people to use environmentally sustainable modes of transport on the one hand. But on the other hand, we have government agencies imposing social distancing and restrictions on the maximum number of people in one place. How will public transport operators reconcile that?

In the “new normal”, part of the public transport infrastructure as we know it today will probably take on entirely new expressions. For instance, what will a bus stop look like? How many seats will a bus have? What about trains? No one knows. But one thing for sure is that the ability to quickly adapt public transport operations to changing circumstances will be all the more important. This requires agile cloud capabilities and advanced data analytics to stay on top of travel patterns, search behaviours and occupancy rates. Digital transformation is at the heart of all this and will be a bigger part of whatever the solution may be.

Create a digital foundation with the cloud

The cloud plays a key role in establishing the digital foundation you need to for digital transformation. For instance, you can consolidate all your IoT-driven traffic data, booking data, usage data and other types of data in a single open and scalable platform. With your data in one place and access to the advanced AI capabilities and processing power of the cloud, you can run machine learning-driven data analytics to get more valuable insights from your data.

A cloud-based toolbox for in-house application development using agile methods and DevOps combined with greater data insights and cloud-native application models will enable you to accelerate digital transformation. This way, you can reclaim your digital destiny and build your own, tailor-made solutions.

Minimize compliance risks with smart policies

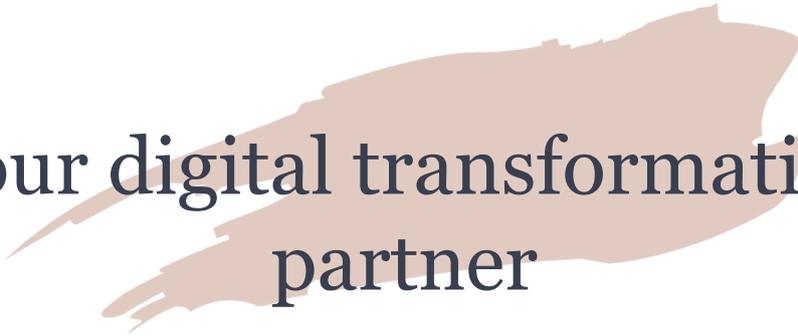
In terms of data security and personal data protection (e.g. the GDPR), it's essential that you set up the right data protection policies for use with the cloud. For instance, you can control the regions in which data is stored. You can also assign higher data protection classifications to specific data to enforce automatic protections like preventing the data from being shared outside your organization.

In terms of compliance with national legislation, like the Public Access to Information and Secrecy Act in Sweden, it might help to know that other public transport operators are using the cloud. For instance, Skånetrafiken, the third-largest public transport operator in Sweden, determined that the cloud was compliant with this specific act following an extensive legal review.

Digital transformation investments in public transport – low-hanging fruit

Combining insights from AI-driven data analytics powered by the cloud and agile in-house digital development capabilities will enable you to build best-in-class customer apps. Based on open payment systems, these applications will make it easier for travellers to search for journeys and departures and to pay. Additionally, having all your data consolidated in an open and integrated platform will pave the way for future MaaS innovations, like combined mobility platforms. And last but not least, once again leveraging the insights from your advanced data analytics, you can add significant value with a more data-driven approach to public transport planning, including personalized traffic information.

All of this will drive more sustainable public transport usage and help you meet your long-term goals. Compared with the substantially high and long-term costs of replacing or upgrading part of your vehicle fleet, digital transformation investments are low-hanging fruit – they can add significant value in a matter of years instead of decades – with a lower cost relative to the value they add.



Your digital transformation partner

Stratiteq has helped prominent Swedish public transport operators like Skånetrafiken master digital transformation and take back control of their digital destiny with the latest cloud technology from Microsoft. We help public transport operators better capitalize on their data, build best-in-class customer apps and set up secure compliance and

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