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Better Connected: Global attitudes to smart public transport

How can cities use smart mobility to unlock public transport growth?



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Around the world, cities are asking the same questions. How do we tackle the great modern transport challenges of cutting congestion, decreasing carbon emissions and driving a post-covid public transport recovery?

Congestion on our roads costs cities billions in unproductive hours spent in traffic every year, and has serious impacts on public health. Furthermore, if we are serious about hitting global net-zero targets, then it is very simple, we need to drive up public transport usage and replace the use of fossil fuel powered vehicles.

That is why we have commissioned this major new research into urban attitudes to public transport globally.

From Washington to Bangkok, and from Toronto to Turin, we have sought to understand how commuters view their public transport network, what motivates their travel decisions, and crucially what can influence them to change how they travel. Positively, three-quarters of respondents would be likely to take public transport, rather than drive, if it was the system was better connected. But, despite the various differences in culture, norms and transport infrastructure between our eight chosen cities, the challenges to modal shift remain largely the same.

Interestingly, respondents are also consistently clear about what motivates their travel decisions: cost, convenience, and comfort.

Lessons for transport operators

Our new research has important messages for transport operators who are focusing on optimising how people and vehicles flow within their cities.

Through our research, we confirmed that the public have a strong general understanding of what 'smart' transport means, driven by high levels of usage of travel apps. Yet, it is also clear that digitisation is presenting certain barriers as well. For example, almost two-thirds of respondents noted that they were put off from using public transport where they needed to use multiple different travel apps; while only just over half were willing to share their payment details with multiple travel apps. This reticence varies dramatically from country to country, with far lower trust in North America and the UK, compared to mainland Europe and Asia.

There is clearly work to do to build trust in technology. But, there is also a need for urban centres to promote digital solutions that cover the entire range of public and private-hire transport all in one place, and remove the need for consumers to juggle multiple different travel apps. Reducing this friction is key for success in the digital world.

Interestingly for cities and municipalities often facing significant budget constraints, our research also shows that citizens are prepared to pay for better-connected transport systems. In particular, almost two-thirds of respondents would accept the introduction or increase of road charging, if the money is spent on public transport.

Our smart mobility opportunity

So how do we meet the smart mobility challenge and deliver the seamless, sustainable travel that can boost transport usage around the world?

As a business, we have used our new midterm management plan to set the path to developing as-a-service digital solutions that we are able to accelerate to market. The reduced capex investment associated with "as-a-service" offerings means that we can provide fast, affordable solutions for operators and city administrations that can start small and scale fast.

We believe these solutions can provide both passengers and solutions can provide passengers the choice and convenience that will deliver the required modal shift away from fossil fuel powered vehicles and towards greener public transport.

In Genoa in July 2022, we launched our 360Pass multi-modal travel app as part of our new smart mobility suite, and we believe it provides an example of what public transport solutions should look like.

The research in this report can help cities' plan the delivery of transportation networks that take advantage of technology to provide a more efficient and effective service. If we are serious about significantly reducing carbon emissions and continuing to build successful city economies, we must take action.



Andrew Barr

Group CEO, Hitachi Rail

Executive Summary

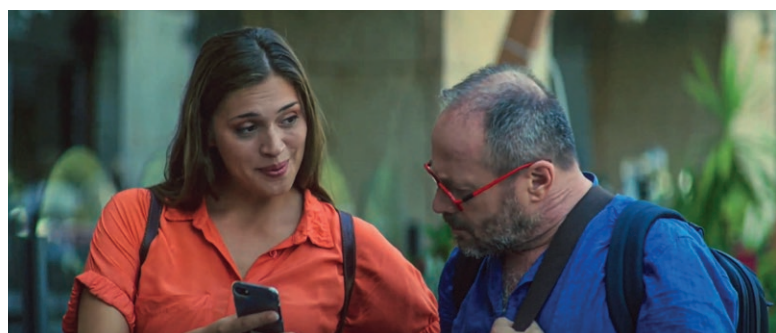
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This report researches attitudes towards public transport in eight key global cities: Washington, Toronto, London, Paris, Düsseldorf, Turin, Dubai and Bangkok. The choice of cities strikes a balance between the megalopolis and the smart city, and from the city where car is king, to cities where public transport is the leading mode of travel. The study, undertaken by consumer research company Savanta ComRes, explores how people's transport and commuter habits have changed, what motivates their travel decisions, and what would encourage their greater use of public transport.

The report finds that while people are now more likely to drive as a result of the pandemic, many people expect to change the way they travel again in the future. The leading reason people avoid public transportation is because it can be too crowded. However, the ability to access live-time information on crowding levels on incoming services would significantly reduce this.

Respondents are also clear about what does or could encourage them to use public transport: the three 'Cs' - convenience, cost and comfort, and there is recognition that better-connected and digitised public transport can help to deliver these.



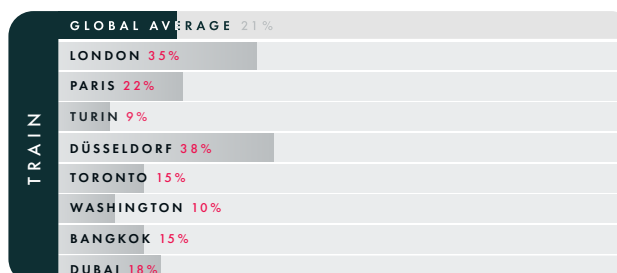
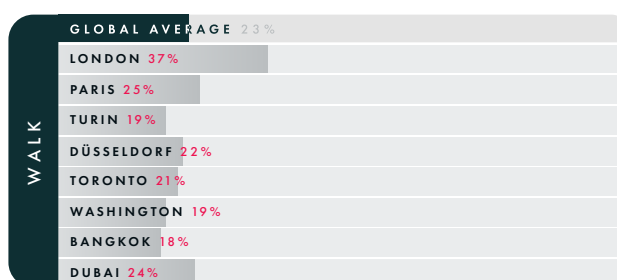
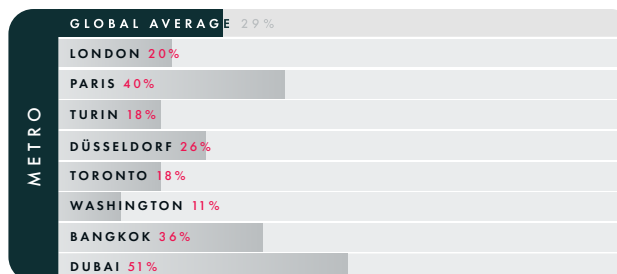
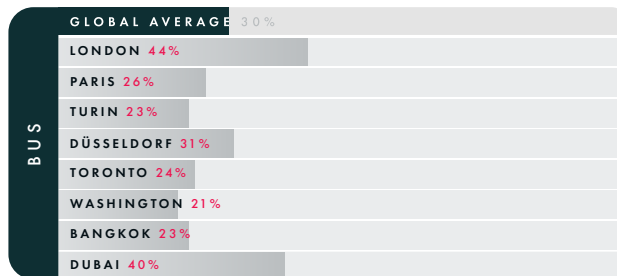
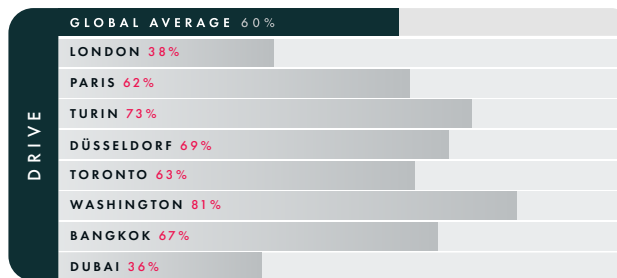
The support for smarter digital transport is also complemented by respondent's willingness to pay more for better services. This report shines a light on how the industry can work to deliver digitally optimised public transport that can encourage people out of cars and truly deliver for passengers.

How people travel

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Across our researched cities, driving is the primary form of commuter transport in all markets, except for London and Dubai, where using the bus or metro, respectively, are most common. Nonetheless, public buses, trams, metros, walking and cycling are a popular mean of transport in every city in the study.

How respondents choose to commute



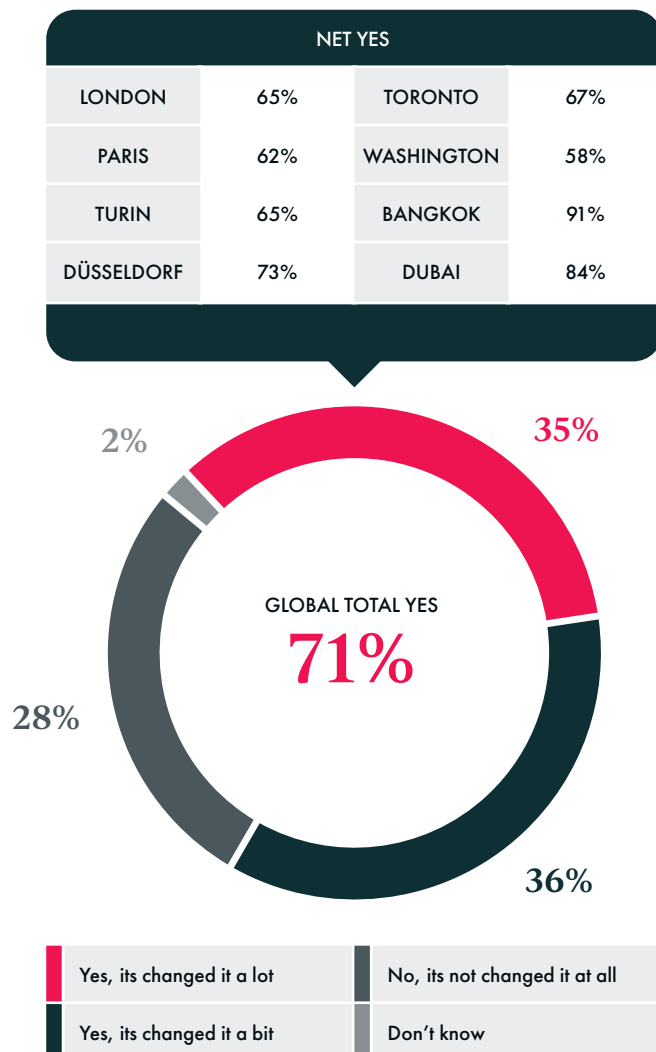
How we travel now, has changed significantly as a result of the pandemic. Across the eight cities, 71% of respondents noted that they now travel differently. These changes are most significant in Bangkok (91%) and Dubai (84%), with a lower but still significant number finding the way they travel has changed in Turin, London and Paris (62-65%).

By far the most substantial change is that people now drive more than they did pre-pandemic (59%).

Current commute to work across all cities

Drive	60%
Bus	30%
Metro	29%
Walk	23%
Train	21%
Cycle / e-Bike	13%
e-Scooter / Scooter / Motorcycle	12%
Tram	10%
I only work from home	5%
Total Commuters	94%

Has the pandemic changed how you travel now?



Is how you travel now is likely to change?

GLOBAL TOTAL AGREE

LONDON	45%	TORONTO	49%
PARIS	47%	WASHINGTON	49%
TURIN	56%	BANGKOK	83%
DÜSSELDORF	62%	DUBAI	80%

Those surveyed do however **expect that how they travel will change again (59%)**. Perhaps unsurprisingly, this notion is most prevalent in the cities that have seen the largest changes to date. For example, 83% believe how they travel will change again in Bangkok, but only 45% do in London where less change was experienced during the pandemic.

Hitachi Rail's viewpoint: Changing transport dynamics



Covid-19 has had a lasting impact on how we travel, both in the context of changing patterns of commuting and working, and how we feel about being in crowded places. In total, 59% of respondents in our research were now more likely to drive rather than use public transport, than they were pre-pandemic. While some cities are recovering, it is still a changing picture and well over half of those surveyed believe how they use public transport is likely to change again in the future. So, the game is not lost. The opportunity is there to tempt passengers back and indeed to grow public transport usage.

Global economic dynamics mean that many urban centres – and indeed passengers – are looking to do more with less. There is a demand to optimise and join up existing services and modes of transport. We believe that smart mobility – the digital connection and optimisation of transport infrastructure – can deliver these solutions, bringing benefits to passengers, transport operators and society as a whole.

What influences how people travel?

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What are the barriers to using public transport?



Our research found that a greater number of people continue to seek to avoid crowded services as a result of the pandemic.

DÜSSELDORF

I drive more and more with my own car and when I do take the train / bus I try to take rides that are not so crowded.

LONDON

I tend to use my car more as I prefer knowing I'm not going to come into contact with asymptomatic people.

TURIN

I travel more by car as on public transport many do not use protective means.

PARIS

Before I used more public transport, but with the pandemic and the transmission of the virus I used my car more.

BANGKOK

Congestion, relatively inconvenient travel connections, more time consuming than using a private car.

DÜSSELDORF

Very unreliable connections, train cancellations without warnings in the apps, failing or overloaded rail replacement traffic.

TORONTO

At certain times you can't predict how busy it will be and the (Covid) cases are going up again.

WASHINGTON

Cleanliness and time efficiency. It takes longer to use public transport than to drive.

TURIN

The crowding and the fact that often the schedules and frequency are not reliable.

Looking at the potential barriers to using public transport, we found that **overcrowding (48%) and busyness (42%) of services are the single biggest factors that put people off.**

The importance given to these barriers is likely in part a hangover from the pandemic and people's increased reticence to being in crowded places. Lack of reliability (31%), lack of convenience (31%) and longer journey times (30%) are the three other most significant factors for respondents.

All of this data points towards the importance of providing services that can boost reliability and convenience and provide passengers with the type of live information that can enable them to have the choice to avoid crowded services.

CASE STUDY:

Hitachi Rail's smart mobility launch

In July 2022, Hitachi Rail launched its smart mobility solutions in Genoa, Italy, digitally connecting public and private hire transport across the entire city. Using technology from Hitachi's new smart mobility suite called Lumada Intelligent Mobility Management, trial-users had access to the 360Pass multi-modal travel app which enabled them to plan their multi-modal journey with live-time service updates, including information on the crowding levels of incoming bus services.

By placing over 7,000 Bluetooth sensors on services and at stops around the city, passengers could also travel using hands-free ticketing, with the 360Pass multi-modal travel app simply calculating the best-priced multi-modal fair at the end of the day.

The benefits of Hitachi Rail's smart mobility technology in cities such as Genoa are also significant for municipalities and operators. Insights from passengers' multi-modal journeys enable the creation of a 'digital twin' of the city's transport infrastructure, which can then be used by operators to connect, scale and optimise the transport network.

The three C's: convenience, comfort and cost

Respondents were also clear about what is likely to encourage them to use public transport more: convenience, comfort and cost. Across the eight cities, there are common themes that emerge as likely to increase peoples' public transport usage:

1	Ability to avoid crowded services	79%
2	Providing shortest journey times	78%
3	Providing cheaper services	78%

Significant emphasis is also placed on the importance of reliability (73%).

Interestingly, while the sustainability is an ever more important issue, it does not necessarily act as a primary driver in motivating people to travel by public transport, with only 14% selecting it as the main benefit of using public transport, versus 29% for faster journeys, 25% for cost effectiveness and 19% for comfort.



Hitachi Rail's viewpoint: What motivates passengers?

Hitachi Rail works with cities and operators around the world to deliver smarter, better-connected transport systems, and our research shows that 75% of passengers would choose to use public transport over driving if we as an industry can deliver this.

Consistently, across the eight different cities polled, we can see that comfort and convenience are the biggest drivers of using public transport. For example, almost three-quarters of people would use public transport more if they could access live information on the crowding levels on services. And, while 'convenience' means speed, reliability and frequency of journeys, we also increasingly care about ease of paying for our journey. Passengers now prefer to travel using tap in, tap out cards or hands-free technology – such as the 360Pass multi-modal travel app we launched in a trial in Genoa. Far fewer passengers now choose to travel with paper tickets.

We also need to understand that while passengers care about their effect on the environment, it is not necessarily a determining factor in how they travel. Indeed, faster journeys are twice as likely to motivate a person to choose to travel via public transport as compared to environmental factors.

What do people understand by smart mobility?

As part of our research, we sought to understand how passengers understood the term 'smart mobility'. Despite being an industry term that is not generally used in consumer-orientated channels, respondents generally had a good understanding of the term. Respondents consistently highlighted factors such as technology, information management and joined up services in their definitions. For Hitachi Rail, smart mobility is the means by which we provide these types of outcomes.

DUBAI

It means the using of modern technology to make transport more convenient and accessible.

TORONTO

Provide customers with services related to different modes of transport and traffic management so user can be better informed and make safer and coordinated use of transport.

DÜSSELDORF

Describes a transport option that adapts to my needs and is individually planned and usable.

TURIN

Intelligent traffic and public transport management thanks to automated processes.

WASHINGTON

Transportation that is less polluting, easily accessible in terms of getting to and from services that are offered.

LONDON

Using computer systems to connect up modes of transport including better communication to passengers.

PARIS

I think better organisation and increased frequency of means to avoid abundance and congestion.

BANGKOK

Transportation systems that use technology to facilitate passengers, such as providing information on the whole journey, arrival time, road traffic conditions, road conditions, environment etc.

How do passengers like to plan and pay for their travel?

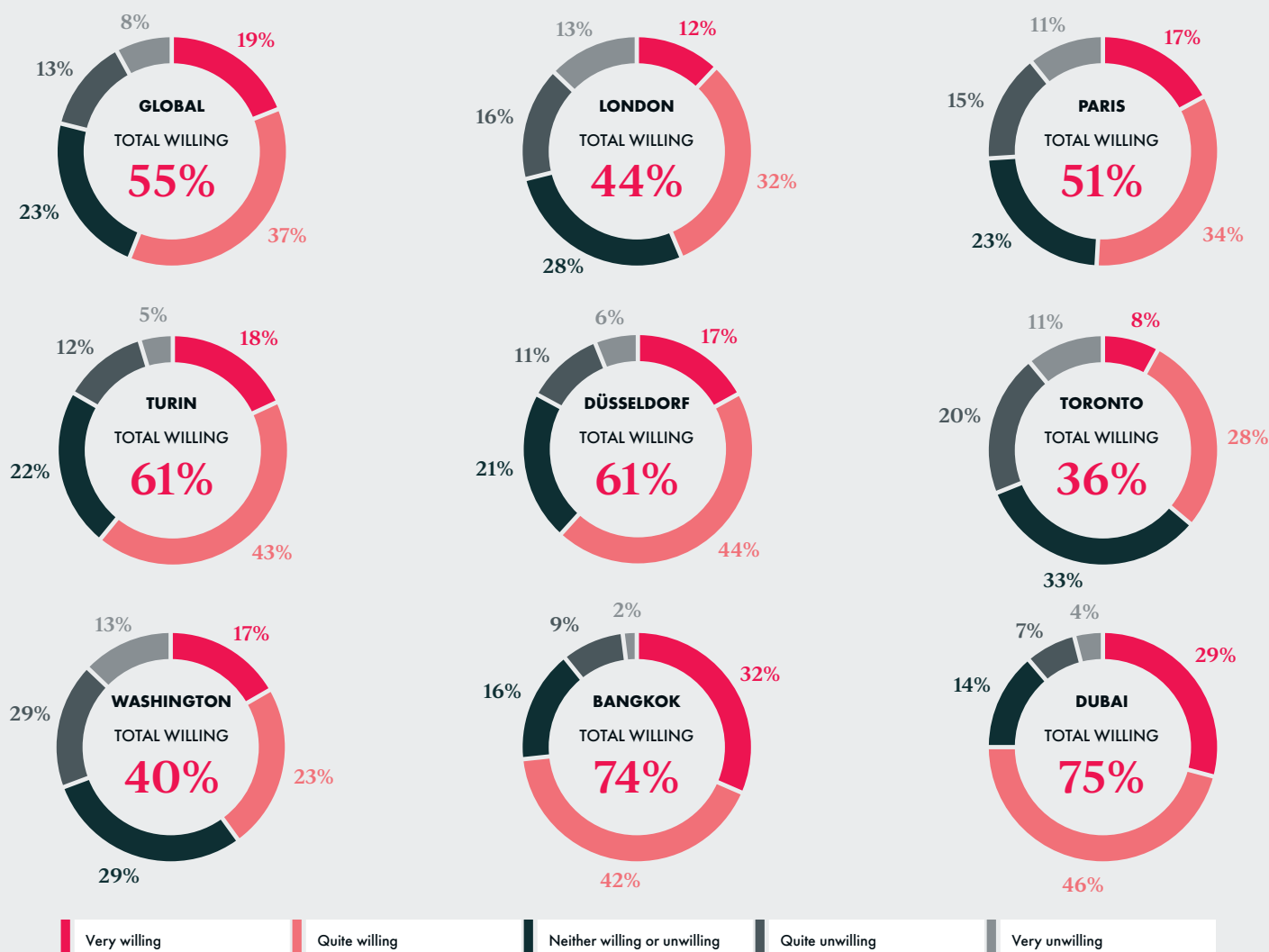
With the significant growth of travel apps in the last decade, people now face a range of ways to plan, book and pay for their travel on public and private-hire transport. Our research looked at which types of options are used most by passengers. The survey found that the majority (59%) of respondents currently use travel app to plan or book their journeys.

But, in some cities there is notable reluctance to have to use multiple different travel apps (25% overall), but as high as 42% in Düsseldorf and as low as 14% in Dubai. Trust with providing payment details is also potentially an issue, with only 55% willing to share their payment details with multiple different payment apps to book travel.

Relative willingness sinks even lower in the UK (46%) and North America (36% in Toronto and 40% in Washington) as compared to other markets, e.g. 74% in Dubai and 75% in Bangkok.

Reflecting people's preference for using a single universal travel app in their given city, 81% of respondents believe that they would find such an app useful. This underlines that there is significant value in municipalities, operators and industry working to promote multi-modal travel apps that combine the full suite of ticketing and transport services, removing the need for consumers to provide payment details to multiple different travel apps.

Willingness to insert personal details into travel apps





What do passengers value in travel apps?

When we look at what people would most value from a travel app, the recurrent theme around the ability to see crowding levels stands out. Respondents across all cities (73%) suggested they would be more likely to travel on public transport if they could see live information on crowding levels on services. This rises to almost 9 in 10 people in Bangkok.

When asked to list their top five benefits for using a transport app, respondents placed a significant emphasis on the value of up-to-date service information and efficient route planning.

What would the top five benefits of using digital apps be to your journey?

Accurate real time information about when my service will arrive

GLOBAL AVERAGE	12 %
LONDON	13 %
PARIS	10 %
TURIN	10 %
DÜSSELDORF	14 %
TORONTO	12 %
WASHINGTON	12 %
BANGKOK	10 %
DUBAI	12 %

Real time advice about how to get to my destination by the most efficient route

GLOBAL AVERAGE	10 %
LONDON	9 %
PARIS	10 %
TURIN	10 %
DÜSSELDORF	9 %
TORONTO	12 %
WASHINGTON	11 %
BANGKOK	10 %
DUBAI	7 %

Ability to see the full route planned and mapped out

GLOBAL AVERAGE	11 %
LONDON	11 %
PARIS	10 %
TURIN	10 %
DÜSSELDORF	7 %
TORONTO	12 %
WASHINGTON	13 %
BANGKOK	12 %
DUBAI	12 %

Real time information about service disruption

GLOBAL AVERAGE	10 %
LONDON	13 %
PARIS	12 %
TURIN	10 %
DÜSSELDORF	10 %
TORONTO	13 %
WASHINGTON	10 %
BANGKOK	5 %
DUBAI	8 %

Accurate real time information about connecting services and modes of transport

GLOBAL AVERAGE	10 %
LONDON	10 %
PARIS	8 %
TURIN	12 %
DÜSSELDORF	11 %
TORONTO	9 %
WASHINGTON	9 %
BANGKOK	9 %
DUBAI	10 %

Research findings: paying for journeys

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How do passengers choose to pay for their journey?

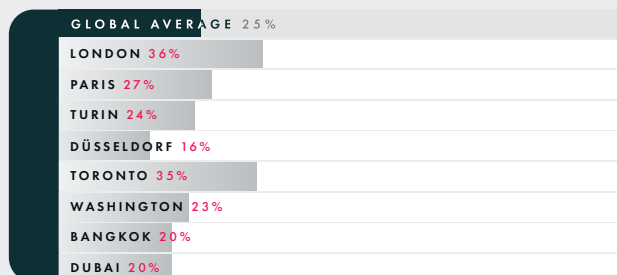
When it comes to how passengers pay for their travel, the research found clear preferences for tap in, tap out (25%), hands-free ticketing (20%), or scanning a QR code (18%) over more traditional options, such as buying a ticket at the station (15%), or collecting advanced tickets at the station (14%).

Again, there is significant variation between cities, perhaps reflecting existing options in each area. For example, tap in, tap out is preferred by 36% in London and 35% in Toronto, while in Düsseldorf there is a significant preference for hands-free (25%) and in Bangkok for e-tickets

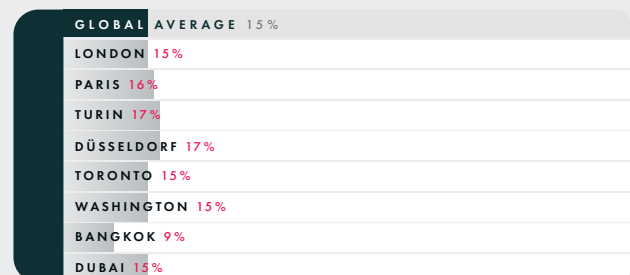


Transport payment methods

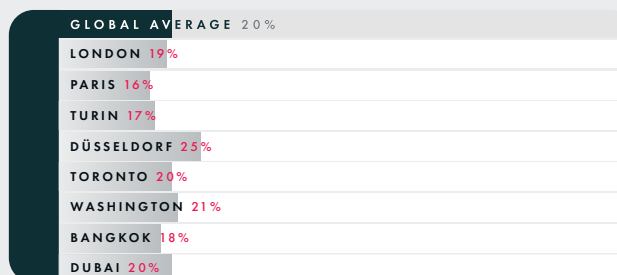
1. Tap in tap out with a credit card or phone



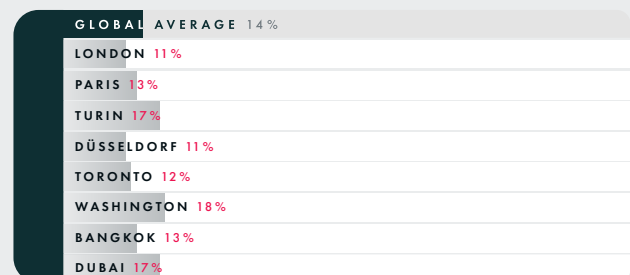
4. Buy a ticket at a station or on a service



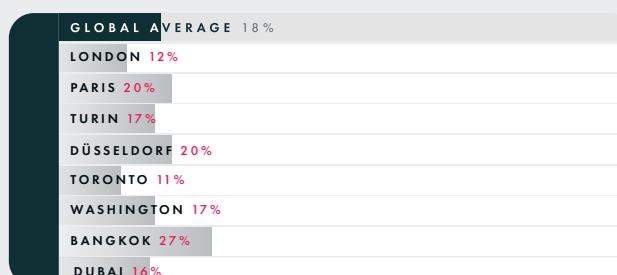
2. 'Hands free'



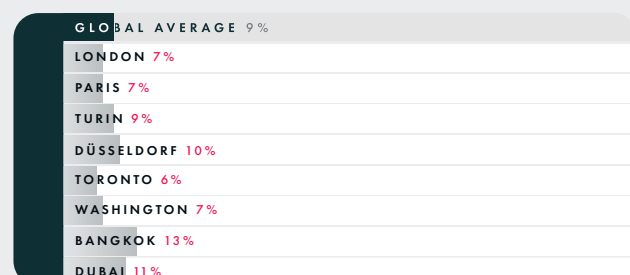
5. Pay in advance on a travel app to collect at a station



3. Buy an e-ticket and scan a QR code



6. Biometrics technology (e.g. face recognition, etc.)



What do people want from their public transport and how should it be funded?

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Better-connected services

A core purpose of smart mobility solutions is the ability to better connect and join up different elements of public transport infrastructure. This can be both about providing passengers with better multi-modal journey planning options, but also operators working with better data to provide a more joined up service with an optimised timetable.

Interestingly, a significant majority of those surveyed (75%) would be more likely to travel by public transport as opposed to driving if their transport network was better connected.

Although there is considerable regional variations and this is as high as 91% in Bangkok and as low as 60% in Washington, 61% in Toronto and 68% in the UK. The respondents were also clear about why they would prefer to travel on a better-connected system, identifying the main benefits as faster, more cost-efficient and more comfortable journeys.

But who is paying?

Our research finds that people would also be prepared to pay more for better-connected public transport.

When faced with the same option of a better-connected transport system but at a higher cost than driving, 3 in 5 people (60%) still suggested that they would choose to travel this way.

Our research also suggested that one possible route for charging and paying for better-connected public transport could be via new or increased road charges. Overall, 63% were in favour of this as a revenue source, with only 14% against. Even in cities with the highest percentage of driving commuters, there is still a majority in favour of such taxes (51% in Toronto and 52% in Washington).

A call to action: Our smart mobility Solutions



Ludmil Neykov,
Chief Digital Officer, Hitachi Rail

To meet the challenge set out in our report and drive up usage of public transport, we have developed our Lumada Intelligent Mobility Management suite – a set of solutions that we believe can transform urban transport networks for cities, operators and passengers around the world.

The suite represents our 360° vision for smarter mobility, incorporating solutions across three key areas: smart ticketing, mobility management and electrified mobility solutions. At the core of this suite is a platform that provides real-time network visibility with data insights – 360Motion.

360Motion is a platform that brings data from the wider suite into one place, enabling us to create a 'digital twin' of entire transportation networks. This can provide invaluable insights for both operators and passengers, enabling the optimisation of timetables and services, and providing the type of data that allows passengers to see the crowding levels on incoming services.



To ensure our suite is appropriate for any town or city area, it can both connect and scale existing mobility solutions from any data source – for example established e-ticketing platforms, rail and bus networks and charging points. Or, it can scale with Hitachi's own suite of solutions, such as the 360Pass hands-free smart ticketing technology – discussed earlier in this report – that we recently launched in Genoa.

In short, our goal is to provide a suite of solutions that can easily be adapted to any urban area to help operators and cities make smarter investment and operational decisions, and to accelerate the move to more sustainable transportation.



This study looks at how people choose to travel and commute in a diverse set of global cities.



Respondents would choose to use better-connected public transport more, and would be particularly motivated by the ability to see real time service information, including on congestion and crowding levels. People would like to access this type of information via a single multi-modal travel app, with the need for multiple different travel apps perceived as a barrier.

Ultimately, how people travel tends to be shaped by the three 'Cs': comfort, convenience and cost. For public transport to achieve this over cars, will require the type of optimised, digitally joined-up transport networks that only smart mobility can deliver.

About the research

The consumer research company, Savanta ComRes, undertook the research for this report. The research was conducted in eight cities around the world, using demographically weighted online surveys of at least 1000 residents in each city.

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