

## The beating heart of the transport industry

### ***Imagining what life and work could be like for someone working in the transport sector in 2025.***

It's 2025, and the transport sector has seen some considerable changes. By now, three out of five cars are battery-electric vehicles, but also the way that people get around the urban jungle has become much smarter. Ticketing between different providers has been harmonized and simplified, and customers can pay for their tickets in a myriad of ways, without even reaching into their pocket: iris, fingerprint or facial recognition, as well as wide range of wearable devices.

Meanwhile, cars alert manufacturers of problems even before they happen, or alert owners of the vehicles of a more minor problem that needs fixing. Predictive maintenance is everywhere. At the same time more and more vehicles are autonomous, and several fleets of taxis are now self-driving, and of course arrive on demand.

Transport networks have become much smarter, particularly in large cities. Faced with limited capacity and growing congestion, cities have had to get smart. Centered on a vast amount of data being collected from vehicles, street furniture and road, rail and underground networks, artificial intelligence is being used to maximize capacity, while also minimizing air pollution. Companies have implemented smart logistics, drawing on data from engine management systems and GPS's to minimize their carbon footprint, comply with more stringent air quality regulations and ultimately, save money on fuel.

In London for instance, the number of commuters opting to cycle or scooter to work has grown exponentially. Battery-powered bikes and scooters have a far longer range than before as battery technology has improved, and they are also lighter and quicker to charge than ever. Sensors in bikes and wearable devices are regularly analyzed to improve the cycling infrastructure. A new network of smart 'skytunnels' now crisscross the city. The skytunnels are essentially glass and steel tubes suspended 50 feet up in the air, which keep cyclists dry and warm in winter and cool in summer, as well as enabling them to keep out of the way of larger vehicles and pedestrians.

Riders' wearable smart devices – from watches, smartglasses to in-ear headphones – are able to inform users of the optimum route, in real time, based on congestion hotspots or maintenance work.

Dan is a project manager for an organization that runs the day-to-day operation of a public transport network, and helps to manage the city's main roads too. He has a wide range of experience, with skills in the implementation of technology and process change to help make transport and logistics organizations more efficient. Currently, one of his tasks is running a project that is aimed at reducing congestion in one of London's busiest Underground stations: Oxford Circus.

He rides his electric scooter most of the way in the main East-West skytunnel, before completing the last couple of blocks at road level. Folding his scooter he enters the organization's main transport control center reception hall, where an iris recognition scanner grants him access to the lifts to the fifth floor: the central command center where banks of computers and monitors are used to ensure the best possible use of available capacity on the various transport networks. Some have an operator sitting in front of them, potentially able to make minor adjustments, while others are simply providing a view of what an artificial intelligence engine is doing automatically in the background.

Dan doesn't always work in the control center, depending on the specific project he is working on. His organization encourages flexi working, a scheme which offers staff a better work-life balance, saves the organization on total required office space and also reduces the number of commuters on London's already busy streets and transport networks. The organization found that adopting the scheme also enabled it to attract an even better quality of recruit, as it is such a popular benefit. The company has implemented workplace technology that means that staff can access the data and applications that they need whether they are working from home or are on the road.

This morning though Dan wants to use the control room systems to take another look at footfall at Oxford Circus, particularly to see where there is most congestion, and to try and establish if the current routes that travelers are asked to follow to the various different lines are in fact optimal. While it's clearly not possible to take down walls and widen corridors any further, it is possible to make adjustments to which corridors, entrances and exits are used to guide passengers from A to B in the station.

Dan is using a number of different ways to look at how people move around the station, and in what numbers. There is data he can draw on from passengers entering the station to when and where they complete their journey, based on when they make their ticket purchase with their contactless credit card, biometrics or wearable device with a payment app. He is also using the station's cameras, synched to a computer that is running pedestrian modeling software and crowd simulation technology. Not only can it monitor people's movements, in real time, but he can also use predictive analytics to see what effect rising passenger numbers are likely to have on the worst congestion black spots. He can also compare this data with data from the number of passengers using Wi-Fi on the Underground, gathered from the various Wi-Fi hubs dotted throughout the station and then analyzed centrally.

After lunch, Dan has a specialist consultant coming to the office who has experience of modeling and subsequently improving pedestrian flow in Manchester Piccadilly train station. On arrival at reception, Dan gives him a pair of visitor smartglasses. These serve several useful functions. They can be used to browse the web and make holographic video calls to others, and they offer access to a wide range of productivity applications. But they are also smart enough to give the consultant access only to the parts of the building where he is authorized to be. Swiping them or pointing them at a sensor at various doors or lifts, in combination with an iris or fingerprint scan, means there are several layers of security.



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*"Linking a number of devices to smart security systems is something that we already see today, but in the future as Dan's story suggests there is likely to be even more seamless authorization processes and access privileges for staff and visitors, linking a wider range of smart devices that will suit different situations," said Fujitsu's Proposition Lead for Digital Workplace Services, Martin Smithen.*

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In a meeting room, Dan and the consultant use their smartglasses to 'walk through' Manchester Piccadilly station and take a look at some areas where the consultant was able to make improvements. The combination of virtual reality and holographic makes it feel like they are actually moving through the crowds together – it's all possible thanks to a 'digital twin' of the station built using quantum computers and hundreds of thousands of data points and measurements captured on the ground using a miniature drone-based buildings scanner: all transport hubs, even those underground, have been mapped and then 'cloned' in this way by now.

It means that they can have the sense of being in the station in rush hour, and they can also model the same path through the station but with different volumes of passengers. They both agree that the station is going to be close to maximum safe capacity with a rise in passenger numbers of more than 20%. Next the consultant pulls up a series of graphs and charts for Dan, still on their smartglasses. They show that through a number of changes to the way passengers are encouraged to move through the station, boarding times of trains were improved, and queues shortened. Dan is now convinced that the consultant's experience at Manchester Piccadilly could be useful in his work on the Oxford Circus project.

Later in the afternoon they do a simulated walk-through of Oxford Circus, but this time Dan also brings on four other members of his team – all of whom are working off-site but have full access to the simulation remotely. They can experience it using various wearable devices or just a tablet. The consultant thinks there may be several areas where signage could be improved, and he suggests they work on it together in the coming days.

After the simulation, and the consultant has left the office, Dan and his team are able to have a five-way conversation as if they are all sat in the room together, using a combination of their smartglasses and the latest holographic technology. There are times when face-to-face meetings are still desirable – especially when his team is planning on ending some work meetings with a more social outing after work, such as a meal at a local restaurant – but on the whole it doesn't matter where his team members are. They all agree it has been a valuable afternoon and he gives each of them a few tasks to do in coming days.

This evening after work though, Dan has planned to meet a friend in Camden to see one of his favorite bands. He decides the best way to get there is to scooter to his nearest Underground station, which is exactly what he does. At 6pm the entrance to the tube is busy, but the crowds are moving and it's not long before he is waiting on the platform for his tube to Camden Town. The operators at the control center he was in just this morning are doing a

good job, he thinks to himself, even if many of the systems are backed up by sophisticated artificial intelligence running almost unnoticed in the background.



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*“Seamless collaboration across teams and the physical walls of offices requires a combination of technologies and smart thinking,” said Fujitsu’s Chief Technology Officer for the Transport Sector, Rabih Arzouni. “More and more companies are reaping the benefits of modern workplace technologies when used hand-in-hand with a flexible and agile approach to working practices.”*

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Dan reflects that for his team to be as effective as they are – helping the organization to maintain its excellent track record for the reliability of the transport network – it’s been vital that they can collaborate seamlessly whether in the office, at home or even on the move. Giving them workplace technology that is as powerful or even more powerful – yet as easy to use – as the kind of technology they are using at home in 2025, has proven invaluable.

Staff have the ability to communicate across the team almost whenever and wherever they are, using their device of choice. It means that the organization does not suffer from ‘shadow IT’ where staff seek out unauthorized solutions to get their jobs done because the sanctioned technologies are not up to scratch, which also has huge consequences for security and complying with regulations. After all, his organization is largely responsible for the safe running of the city’s transport networks.

Transport has been investing in customer experience and revenue generation for years, leaving behind investment in the workplace – this has a knock-on effect on the sector as a whole compared to other sectors. The future of the work environment is beautiful in its experience, has an ethical foundation and promises human development, wellbeing and fulfilment at work.

This is considered a novel approach in the transport sector. Businesses are encouraged to take stock and think about the long-term trajectory of their workplaces. A new generation immersed in technology in their daily lives are coming into the workforce and they expect a digital experience in the workplace. Not investing now could pose a risk of not attracting new talent to your organization.

**The future workplace will be a space for even more collaboration, creativity and engagement, enabling a connected workforce to have an exciting employee experience. Read everything you need to know about the future workplace [here](#).**