

CHALLENGES AND INNOVATION IN THE URBAN ENVIRONMENT

THE
CITY

OF

TOMORROW

FORD
MOBILITY X WIRED
Consulting.

“WHILE THE CHALLENGES ARE MANY, THE SOLUTIONS ARE PROLIFERATING”

Ford City of Tomorrow

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The world is becoming urban. Humans have known for millennia that settling in clusters makes life easier and more productive. More recently, industrialisation has given cities a key role in human development, allowing goods and services to be invented, produced and consumed more efficiently. By 2050, around 70 per cent of the world’s population will live in cities (a level already surpassed by many developed countries). But with the great advantages of urban settlement come great challenges: the task of feeding city populations and providing basic services such as sewerage, healthcare, infrastructure and energy while meeting their aspirations for a satisfying quality of life becomes more complex.

At the core of this urban challenge is mobility. People must move for work and for leisure, and to access many of the services on which they depend. At the same time, the goods that they need or desire must be manufactured and brought to convenient locations, whether retail outlets or the consumer’s front door. And all of this movement – this shifting labyrinth of goods, services and people – must compete for a finite share of the urban footprint, along with buildings, utility networks and the residents themselves.

Even cities built from the ground up to exemplify contemporary best practice in urban planning – such as Brasilia, which rose up on the Brazilian highlands in the 1950s – are overtaken by events as populations grow, preferences change and new technologies emerge. By contrast, many European cities predate the industrial era, frequently by several centuries. Today’s city planners must often contend with layouts intended to secure passage for horses and carts.

“There is no such thing as an ‘ideal’ city, or even a city built from

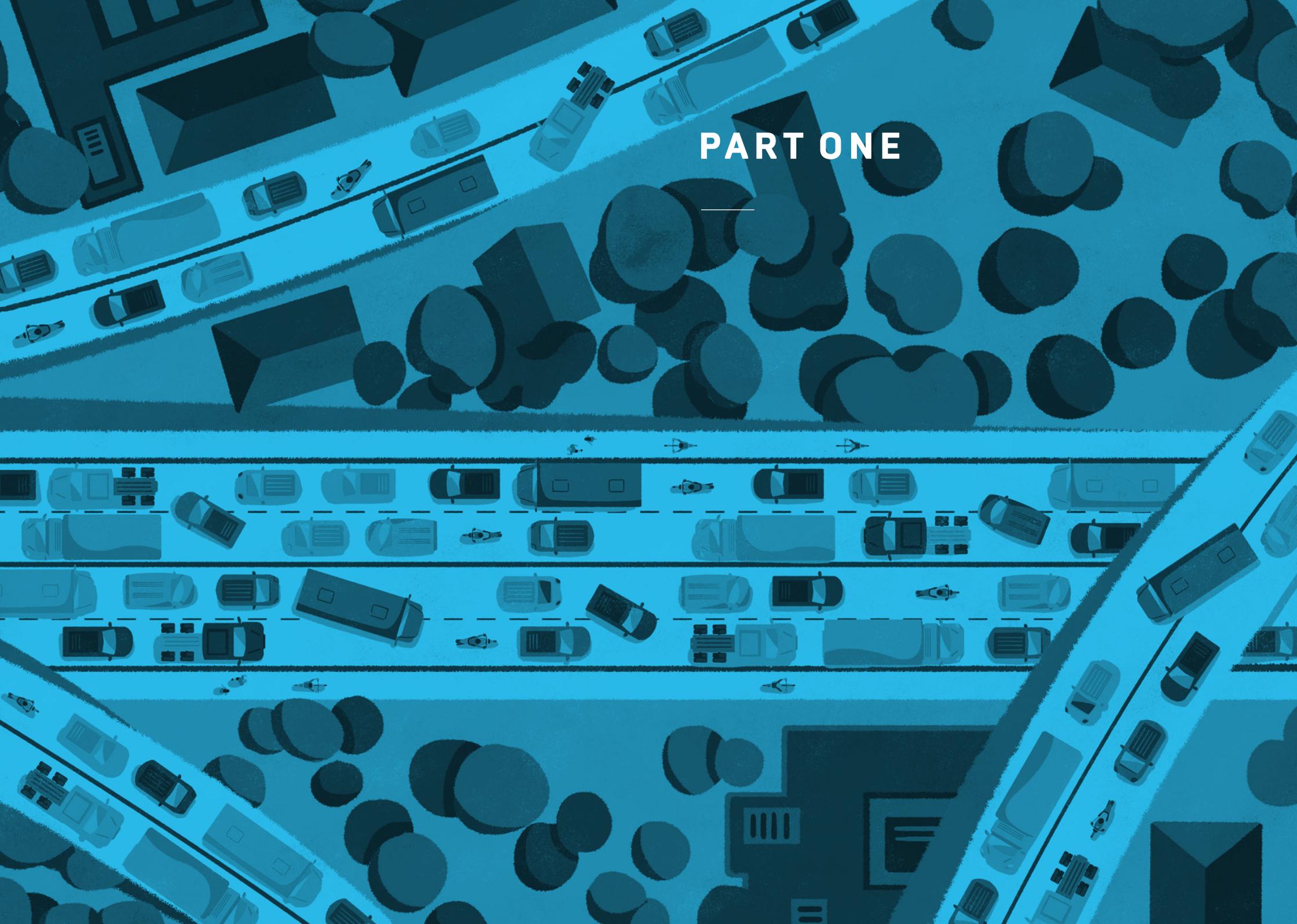
scratch,” says Usman Haque, founding partner of Umbrellium, a London-based urban design firm. “A city does not exist at all until it is a thriving complex system, otherwise it’s just a dorm with a supermarket. So, every city faces the ‘legacy’ issue – or soon will.”

Those who must confront these challenges – urban planners, architects, suppliers of mobility services – face unprecedented pressures. The wealth that modern societies have achieved means more demand than ever for mobility and an urgent desire for healthy air and safe roads. To society’s credit there is also greater recognition of those with atypical needs, such as the very old and very young, the infirm or disabled and those struggling financially.

But while the challenges are many, the pace of innovation is accelerating as well, bringing a proliferation in potential solutions.

In this report we explore both the challenges and some of the proposed solutions in depth, helped by a range of expert witnesses from industry, academia and public administration.

In this report we first look at the issues standing between city dwellers and the mobility they aspire to have. Secondly, we lay out a range of approaches city authorities might take in removing these barriers, including new forms of transportation, better collection and use of data, and improved ways of winning support for new initiatives.

An aerial, top-down view of a city street scene, rendered in various shades of blue. The scene shows a multi-lane road with dashed white lines, filled with various vehicles including cars, trucks, and motorcycles. On either side of the road are clusters of trees of different sizes and shapes, and several buildings of varying sizes and orientations. The overall composition is a dense, stylized representation of an urban environment.

PART ONE

BARRIERS TO MOBILITY IN THE CITY OF TOMORROW

The watchwords are inclusivity, accessibility and sustainability

Designing future mobility solutions that work for the city's most important element – the people who live and work there

In late 2018, Ford convened a series of City of Tomorrow Symposia bringing together urban planners, transport experts, local politicians, technology leaders and academics to explore the challenges facing urban mobility over the coming years. The events, held in London, Valencia and Cologne, responded to a need to design a collaborative vision for future mobility, built upon inclusivity, accessibility and sustainability.

Through inspiring presentations and interactive workshops, they sought real and actionable insight into designing future mobility solutions that work for the city's most important element – the people who live and work there.

This report draws on the conclusions of those Ford City of Tomorrow Symposia, and on the expertise of some of those who took part, as well as deferring to specialists in some of the key areas covered. The aim was to identify the barriers that stop city stakeholders from fulfilling their mobility needs, and to discuss existing and new ideas for overcoming them. We will address those solutions in the next section: but first, a look at the barriers.

The issues that emerged fall into four broad categories: accessibility, efficiency, planning and safety.

ACCESSIBILITY

Millions of people traverse Europe's cities every day, but many are prevented from making journeys because transport networks fail to meet their requirements.

The Ford Symposiums identified archetypes such as stay-at-home parents travelling with young children; silver surfers who may have reduced mobility but little reduction in lust for life; and business people with busy and inflexible schedules.

Among all the challenges facing mobility in the city of tomorrow, assuring fair, affordable and effective access to all those requiring it is the most pressing. Araceli Camargo, a cognitive neuroscientist and co-founder of The Centric Lab, addressed stakeholders at the London Ford Symposium on how to design transport that was accessible to everyone. She explored the flow of the future city, and how design principles can bring inclusive transport for all city inhabitants. She emphasised the importance of collaboration between key stakeholders to strike a balance between innovating for the future while implementing the best solutions today.

The needs of parents with babies, the elderly (city populations are ageing) and infirm, and those with disabilities are no less urgent than those of others. Public address systems are of little help to the deaf, and digital indicators providing information fail the visually impaired. The technology that many of us take for granted in planning journeys risks leaving behind those who cannot afford, or are unfamiliar with, the devices this requires. Many citizens also face financial barriers to accessing transportation, and while cities that do provide efficient transport infrastructure to its healthy, working population may still be letting down many others.

However, new technologies give cause for optimism – self-driving vehicles, for example, promise more accessible transportation. Planners are deploying a range of solutions, many driven by digital capabilities, that further democratise urban mobility.



EFFICIENCY

Passengers, drivers and goods traffic are competing for scarce space on city road and rail networks that were designed to address fewer, and less sophisticated, needs. The natural cycles in the movements of many stakeholders – commutes, the school run, pub closing-time, popular cultural events – create fluctuations in demand. At the same time, new requirements placed on old systems, such as package deliveries from e-commerce providers, are leading to inefficient use of available resources.

Delegates at all Ford City of Tomorrow Symposiums pointed to the lack of co-ordination between modes of transport, both in terms of schedules and the physical nodes where people change modes – inconvenient walks between train and bus stations, for instance. But the most conspicuous result of inefficiency is congestion. The average London driver spends more than three days per year stuck in traffic, for instance. This was among the conclusions of an innovative project by Ford which gathered data from 15,000 days of vehicle operation in the city over a decade. The project offered city planners a new way of identifying likely road safety hotspots so that pre-emptive measures could be taken to lessen the risk of traffic accidents.

By far the heaviest users of the road network in European cities are private cars. Freight road transport accounts for between one-tenth and one-fifth of vehicles (but up to 40 per cent of the pollution). The numbers for Britain are in line with Europe as a whole: two-thirds of all commuter trips are made by car. Indeed, journeys of more than a mile are usually by car (shorter journeys are walked): three-quarters of households have access to a car, and one-third have two or more.

“Around half of urban journeys are by one person covering a short distance at low speed,” says Kent Larson, director of the City Science Research Group at the MIT Media Lab in the US. “It makes no sense for one person to go at 12 miles an hour over a short distance in a \$40k auto that seats five people and can go 150 miles an hour.”

Despite this, the private car will remain an important component of the mobility mix for some time to come. There are many reasons, including the fact that many of our cities have been developed over the past century or so with the car in mind. While more recently roads have become increasingly congested and car travel less pleasant and efficient, the focus on private motor vehicles has

tended to crowd out other modalities, wedding people to their cars for longer than might otherwise have been the case.

As anyone attempting to traverse the city at the beginning and end of the day will know, road congestion hits its peak during the morning and evening commute. To make matters worse, commutes are getting longer, as workers seek affordable accommodation further away from city centres where many of them work. As urban populations grow and gentrification rehabilitates vast areas for professional occupancy, the burden of bringing workers to where they need to be at the start and end of the day is increasing.

For those using public transport rather than private vehicles for the daily commute, the problems are not dissimilar. Overcrowded during rush hour and running empty at other times, train carriages, buses and trams can be sources of discomfort to users and even financial losses to operators. On routes where use is low, they are no less important to the individuals that use them, but are hard to run at a profit. Non-motorised transport, frequently seen as a key part of the solution to congestion and pollution, can be another source of inefficiency. Bikes share network space designed for faster and denser traffic, and frequently must compete for road space with bigger, heavier and more profitable modalities.

The Valencia Ford City of Tomorrow Symposium described a future where the citizen’s primary concern is not the mode of transport, but being able to arrive at their destination on schedule. This might see users buying tickets to their end point, rather than for a specific mode of transport. Data-powered central algorithms would then assign them the most efficient transport route, providing seating and keeping them informed of changes. Cities could extract maximum efficiency from their available mobility resources – but this would require a revolution in the availability of data: on transport, on the urban surroundings and conditions, and on the needs of the citizen.



PLANNING

A future where technology allows all mobility choices to be informed by a central artificial intelligence will give the individual their best options for their needs. That remains a distant prospect, which is why it falls to public administrations to create strategic plans for city transport systems. Planning failures today mean expensive and rushed policies later, while citizens deal with the frustrations of inadequate transport. But ensuring that today's policies will meet tomorrow's needs is far from straightforward. This means ensuring that businesses can operate profitably, citizens can live healthy, productive lives, and the public purse can remain in the black.

Many of the City of Tomorrow stakeholders believe that planners can be torn away from the focus on the individual. Their challenge is a gigantic problem of optimisation. For instance, they must triangulate development of the city's transport infrastructure with maintenance and normal use. Simply keeping creaky legacy road and rail networks in reasonable order requires substantial resources – and taking routes out of service while they are being repaired increases the burden of traffic on those still in use.

Finding the budget and the planning resources to replace old systems and adopt new ones is doubly challenging. Delaying repairs is a common way of meeting tight fiscal targets, but only at the price of inefficient traffic flow and the delayed cost of eventual repair when conditions become unsustainable.

The key to managing competing priorities is gradualism, according to Rob Whitehead, head of communications at the UK's Future Cities Catapult initiative. European cities can transition “by doing it incrementally, towards a clear goal. The best cities

have demonstrated this transition. Modal shift – and the necessary changes in how to allocate scarce street space – in London has been achieved without a citizen backlash.”

Answerable to politicians, planners must also exercise – like politicians – the art of the possible. Policies that look good on paper may fail if they are rejected by the real people they affect. Car owners

are reluctant to give up their vehicles in favour of more efficient shared transportation, preferring on-demand mobility, speed, convenience and comfort. But car owners are also attached to their vehicles for more emotional reasons: the status an expensive car conveys, freedom from having to interact with strangers, self-expression through the design of the chosen vehicle, the half-imagined freedom to take to the open road and embark on an individual adventure.

The concrete advantages are amenable to direct policy interventions, such as increasing the frequency of trains and providing dedicated bus lanes, for example. The emotional ties are harder to loosen (though delegates attending the London Ford City of Tomorrow Symposium suggested that making public transport equally welcoming was a priority, along with providing workspaces for commuters and play spaces for those travelling with young children, for example).

Besides tight budgets, political imperatives and competing priorities, this cultural element is one of the toughest challenges confronting urban planners. On the one hand, stakeholders have limited patience with transport systems that do not function perfectly and often harbour inflated expectations of how much can be done and how quickly. On the other hand, when change is offered, people often balk at it. They shy away from new practices and technologies and cling to the traditional way of doing things, and they resent the financial trade-offs that are required. Out of the electoral cycle, people will commonly support higher taxes, but when elections roll round, the party promising them rarely does well. France's “yellow vest” protests, sparked by a marginal rise in fuel duties to cut vehicle emissions, present an extreme example.

The key to competing priorities is gradualism. Cities must transition incrementally towards a clear goal



To achieve their aims, city transport departments must attract creative and practical people to an area that sometimes fails to spark the public imagination. Transport is just a single vertical within the smart city, but it's a key one – and creating systems that can accommodate it is a unique problem for city planners. It's often thought that the best and brightest do not willingly make a career beeline for their local authority transport team. However, governments need to think about attracting engaged designers, because it's such a crucial problem that a city has to solve.

Transport is one vertical within the smart city, but it's really key, and this creates a unique problem for city planners

SAFETY

Influencers of the City of Tomorrow believe that a lack of safety, or even the perception of a lack of safety, can put users off making some journeys. Christine Murray, Editor-in-Chief of *The Developer*, spoke at the London Ford Symposium about some of the groups disadvantaged by safety concerns, particularly children, women and the old. “Studies show that in winter, a lot of people go out less, just because it’s dark.” When it comes to young children, the city can be a scary place. Ms Murray told the London audience about a number of projects addressing this concern, including Urban95, “which asks how you would design a city for a 95cm-tall person” – the average height of a three-year-old. Congestion, deteriorating infrastructure and the sheer weight of demand all play into making travellers feel less safe. Public highways used to be the scene for far more community activities before the sheer weight of motorised transport marginalised other users: as markets, impromptu games courts, or simply places to stop for a chat. These opportunities have shrunk, and delegates in London imagined a future where the city itself has had its day, mooted a “Center Parcs” model, where dense urban agglomerations serve separate work and leisure needs with ample green space in between to restore the sense of open air and community.

Noise, air, and even light pollution are taking a toll on the quality of life and the health of urban populations. “Living next to a city highway is like smoking 17 cigarettes a day, but without the pleasure of the nicotine,” says Daan Roosegaarde, a Dutch artist seeking innovative engineering responses to the challenges of urban living.

Mass transit alleviates the issue to a degree, but continues to be rejected by many city dwellers who prefer the independence and convenience of owning their own vehicle. The shift already under way from fossil fuels to electric vehicles promises much. But, as Philipp Rode, head of the Cities programme at the London School of Economics, says, this may simply shift the problem elsewhere unless carefully managed. “Electric vehicles are locally non-polluting, but the energy they use must be generated somewhere so we must also reduce pollution at source.”

Mass public transit’s own problems regarding pollution do not get the headlines attracted by cars, lorries and buses, but are

nonetheless considerable. Scott Cain, founder of RunFriendly.com, a service that connects cyclists and runners with institutions that can offer showers, points out that Hampstead Station on the London Underground network has a level of particulate pollution that is 30 times higher than that of busy city-centre streets. “It comes from the brakes of the trains and the rails,” he says, “and the entrance is by a busy road, where the escalators suck in pollution from the buses and the cars”.

Maintenance becomes a safety issue where road surfaces are poor. For cars, the uneven surfaces are potential sources of damage and wear. For motorbikes and bicycles they are a death trap. Overcrowded transport nodes are magnets for pickpockets, and poorly lit pedestrian routes are an invitation to thieves, and a powerful disincentive to walkers. While Europe’s transport networks remain relatively safe compared with the past, or the situation in less developed countries, the fear of injury or attack and anxiety about pollution add to the discomfort of users and put off many from using the facilities in the first place.

While the immediate focus is on identifying and confronting the challenges that stand in the way of mobility in the City of Tomorrow, it is important to remember that cities exist for people to live in, and raising the quality of those lives is the ultimate goal.

Michael Pawlyn, an architect who looks to nature for solutions to practical problems in urban planning, points out the drawbacks of the rise in e-commerce: “We’re increasingly seeing that the use of online shopping is eroding the sense of place in our towns and cities. It’s making it more and more difficult for independent shops to survive. And it is worth asking the question: is that actually what we want? We know that we like the convenience, but are we factoring in the full implications? At the moment I don’t think we are, and there’s a risk that we will do so too late.”



PART TWO



ROADMAP TO A BETTER MOBILITY FUTURE

The future is visible
on the streets we
travel every day

Moving people and goods around rapidly changing cities will always be an imperfect art, but many of the pressing challenges set out earlier in this report are amenable to the right mix of policies. In some cases, the solutions are a distant vision on the drawing board of a research institute or university. In others, prototypes are already planned or in operation, and the future is visible on the streets we travel each day.

The Ford Symposiums generated discussion on a spectrum of solutions, which fell into two broad categories: those where technological innovation provides the key, and those where processes – new ways of organising things – make the difference.

Innovation has always been a key change agent in city life. Rapid innovation in materials science, automation and data capture and analysis mean the challenge for today's city transport departments is to pick and fund the best among a steady flow of innovative proposals – and when it comes to deploying scarce public or private resources, it is vital to have a clear objective.

For the architect Michael Pawlyn, this concept is central. “We should always have an idea of where we ultimately want to get to, so that when we're addressing the more practical questions, we intervene in a way that is moving us towards our goal.” Among his projects are a design for a zero-waste textile factory and a structure to combine food production, energy generation and water treatment in a closed-loop model that would also handle much of a district's biodegradable waste.

Tim Stonor, the managing director of Space Syntax UK, narrows it down – a little. “If we get it right,” he says, “the city of the future will be a place of slow, shaded streets, full of social interaction and economic vitality. There will be the urban buzz you find in all great cities. You can't quite put your finger on that buzz, but you recognise it when it's there – and you know when it's not.”

A central issue these two visions share is that isolating mobility from the wider issue of urban development is part of the problem. Kent Larson, at the MIT Media Lab, puts it succinctly: “In my mind you cannot separate urban planning, housing and mobility when thinking about the future.”

The Ford perspective : A vehicle to everything -

150 years after the invention of the traffic light, Ford is advancing this technology with C-V2X – cellular vehicle-to-everything technology: wireless communication that will enable direct communication between connected devices and aims to make city mobility safer and less congested.

BALANCING PUBLIC AND PRIVATE

Urban transport is divided between passengers and freight, above and under ground, open road and dedicated pathways such as rail and bus rapid transit networks.

Rationing space and resources between them is central to the planning challenge, while each modality has its own issues.

Cars have brought unique benefits to city dwellers for over a century. They are private and avoid what some consider the discomfort of sharing the commute with strangers. They are built for comfort rather than for mass convenience and to fit public budgets. Critically, they convey their owners door-to-door and are ready to go as soon as the driver climbs in. Manufacturers have long emphasised the aesthetic appeal and status of the private car, and for many owners they are an extension of the self – which makes persuading people to give them up a huge challenge. Nevertheless, attitudes to car ownership are gradually changing, particularly among the young.

“Cars gave you freedom and identity,” Kent Larson, at the MIT Media Lab, explains. “That’s how you got dates.” Times are changing. In the UK, car journeys are in steady decline. In the City of London, average car and taxi numbers fell from 133,877 in 1999 to 55,216 in 2017. Cycle numbers rose by 292 per cent over the same period, to more than 30,000. For Larson, the reason is clear: changing city conditions mean cars are not always the best option. “A car is like a Swiss army knife. It does everything OK, but it’s not really excellent at anything – particularly in the city.”

Policy decisions by London authorities have had a bearing on the trend. One was the introduction in 2004 of a congestion charge, which required a payment from vehicle owners to circulate within a prescribed central zone. A second was the inauguration in 2016 of a network of segregated cycle superhighways, making cycling a quicker, safer and more pleasant alternative.

Nevertheless, as anyone navigating central London’s medieval road plan will testify, the area remains heavily congested, with a mixture of private traffic and public transport and air quality among the worst in Europe. Further out from the city centre, where London’s urban sprawl extends travel distances, the downward trend is less pronounced, and the private car continues to reign.

As well as a reliance on technology to transform urban mobility, policy has a key role to play. “One really easy way to move people out of cars and into public transport is to make cars really expensive to drive,” says Justine Bornstein, of Deloitte UK. Road pricing is a good example. “It can be quite unpopular as something that’s very regressive, but cities are going to have to sell it.”

So far, only three cities have a full congestion charging zone: London, Stockholm and Singapore. Many more impose some form of pricing or rationing, such as toll roads and “high occupancy transport lanes”. Many cities have shied away from imposing congestion charges on equity grounds (for the wealthy they are a minor additional cost), but technology may help. “Industry 4.0 technology – sensors, artificial intelligence, RFID cards – means you can enforce it much more cheaply... and customise it to apply different costs for the elderly or for low earners.”

The revenue point is important – fuel duties have been vital for topping up government coffers, and will need to be replaced as electric vehicles become more prevalent.

Making the transition from private cars powered by internal combustion engines is the single biggest contribution cities can make to resolving many of the challenges outlined by the influencers convened by Ford at the City of Tomorrow symposiums, from congestion to pollution to the availability of kerb space.

These divide into four main areas: sharing rides so that vehicles carry more people; the widespread adoption of autonomous tech; switching from internal combustion engines to electric vehicles; introducing new types of vehicle to overcome the “Swiss army knife” problem. Key to successful implementation for all of the solutions above is the facilitation role that digital technology can play. Without this, ride-sharing would be less efficient, and autonomous vehicles would not be possible at all.

GOING MY WAY

Using all the space in a vehicle by loading up with passengers heading in the same direction is an old practice, from the *colectivo* of the Bolivian capital, La Paz, to the *dolmus* of Turkey's Istanbul. Taxi drivers have known for decades that journey patterns tend to overlap and they can offer lower prices by picking up more passengers at once, plugging a gap between the convenience of the private taxi and the efficiency of the bus. What modern technology offers is a way of extracting maximum efficiency by allowing computer algorithms to route the drivers, rather than leaving it to their experience, ingenuity and the volume of their voices out of an open window.

Fábio Duarte, an urban planner at MIT's School of Architecture and Planning, is an enthusiastic advocate of using digitally facilitated car-pooling to greatly increase the proportion of their time that vehicles spend transporting passengers, compared with circulating looking for a fare.

"We have shown that with dispatching algorithms [software that plans drop-off and pick-up points for ride-share vehicles] we could reduce the number of taxis in New York by up to 40 per cent, yet serve the same number of trips."

Key to sharing rides efficiently, whatever the vehicle, is access to data and the development of algorithms that can use it to optimise multiple journeys, a trend known as "Mobility as a Service" – or MaaS. "Mobility data that is already generated by regular transportation modes could feed intelligence systems that would propose traffic light optimisation, dispatching systems for taxis and ride-sharing, and transport nodes that could decrease the number of trips, and adjust public transport timetables that would be responsive to actual demand." This is connected to another cutting-edge concept in urban transportation: Mobility on Demand (MoD), the idea that a vehicle can be available where you need it and when you need it – without you having to buy it or pay for its storage and maintenance.

This proliferation of data-facilitated services is gathering pace. Scott Cain of RunFriendly says: "There's a big shift towards asking how the data can be standardised and made available in formats that are machine readable, and therefore how that data can further

be made available to everybody. There's a whole swathe of new businesses that are beginning to build products and services using that kind of information. ClassPass [which offers a single ticket to classes in a range of private fitness studios] and PayAs-YouGym [which offers something similar for gyms], for example. If you can make that information available through simple apps, it removes some of the practical barriers."

The key is the confluence of technologies and ideas that, in combination, open unique possibilities. "The classic innovation conditions are ripe for this, because the general-purpose technologies – the internet, geospatial information, mobile technology, and cultural factors like the changing nature of work and how we choose to move around the city – are all coming together."

But to allow the data to flow from service providers, public transport authorities, applications and more, it's necessary to create some common ground. Autonomic, a Silicon Valley company owned by Ford, is working towards just that. By building a modern connectivity platform – Autonomic's Transportation Mobility Cloud (TMC) – car makers, software developers, tech innovators and other players in the mobility ecosystem are given a way to build customer experiences for connected vehicles and helpful transportation apps.

The Ford perspective:
Transportation
Mobility Cloud
-

Improving city transportation and enhancing driver experience is achieved by collaboration. Autonomic has created a cloud-based platform called the Transportation Mobility Cloud that serves as a connectivity layer specifically for connected vehicles and game-changing apps to power tomorrow's urban mobility systems.

The Ford perspective:
City data
-

Ford has developed a smart solution that could help identify where traffic incidents are likely to occur, enabling authorities to take pre-emptive action. Data from one million kilometres of vehicle and driver behaviour, combined with existing accident reports, demonstrate how the company could make travelling in cities easier and safer.

What modern technology offers is a way of extracting maximum efficiency by allowing computer algorithms to route the drivers



REMOVING THE DRIVER

Ride-sharing becomes even more efficient when combined with autonomous vehicles (AV), the next great trend in urban mobility innovation. “[AV] will unlock some amazing benefits in terms of economic productivity,” says Paul Newman, founder of Oxbotica, a UK-based company developing software for self-driving cars. “Less time will be spent on congested roads.” The gains go far beyond the narrowly economic. “AV will also have a positive effect on our environment, as fewer idling engines mean lower carbon emissions. With the right technology, autonomous vehicles are also much safer.”

AV can address some of the accessibility challenges we identified earlier. As urban planner Fábio Duarte puts it: “Autonomous vehicles will give access to mobility to groups who are either immobile or dependent on others, such as the elderly or children.”

AV also promises big benefits in terms of congestion. Martin Adler, a researcher on the economic impact of self-driving cars, sees these in three areas: connectivity, sharing and prices. Connectivity “between vehicles and the road infrastructure such as traffic lights allows more cars to travel with lower safety distance”. Sharing “allows for a tremendous increase in mobility at much lower prices”. And “price to use road space” must be linked “to the available road space. Otherwise, everyone arrives much later.”

For ride-sharing services, the driver is the most expensive part of the cost base – as well as taking up a potentially valuable berth in the vehicle. “Removing the driver almost halves the cost per kilometre and completely changes the rules of the game,” says Adler. “At such prices, private ride-hailing competes with public transportation and changes fundamentally the urban structure by allowing workers to commute much longer distances.”

AV has its downsides. But it promises a shift in mobility design as profound as the arrival of the internal combustion engine.

The Ford perspective: The future is autonomous

Ensuring trust is paramount to the success of autonomous vehicles (AVs). In partnership with Argo AI, Ford is integrating decades of experience in vehicle safety and automotive design with autonomous technology, to deploy AVs at scale by 2021. This ambition to build trust will provide safe, reliable and valuable experiences for the company’s AV users.



FUTURE SPARK

The shift from internal combustion engines running on fossil fuels to electric power trains is under way. By mid-2018 there were 12,000 electric vehicles in London, a tenfold increase in just six years. Globally, 95 per cent of electric cars are sold in just ten countries, according to the International Energy Agency: China, the US, Japan, Canada, Norway, the UK, France, Germany, the Netherlands and Sweden. The trend is clear.

Replacing internal combustion engines with electrified, hybrid and battery-powered electric motors removes a key source of pollution from city streets – though from a global point of view there is a danger that this simply displaces the pollution elsewhere.

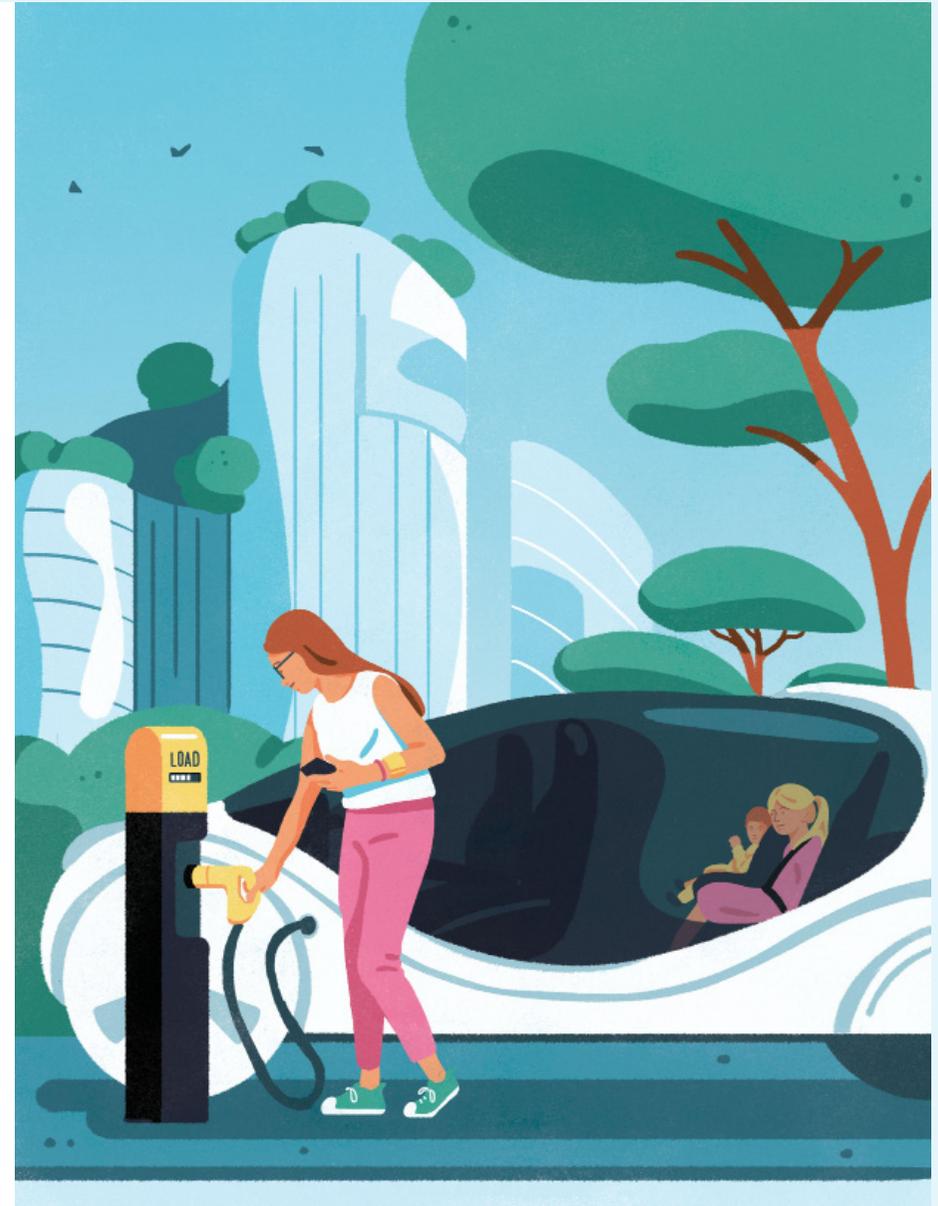
As the LSE’s Philipp Rode puts it: “Electric vehicles are locally non-polluting, but that potentially just pushes the problem to the source of generation.” In other words, we could have cleaner cities but more air pollution around fossil-fuel-fired power plants. This risk needs to be offset by shifting power generation to more sustainable sources, such as wind, solar and nuclear. Here, too, technology has allowed rapid progress. “We’re now seeing pretty cost-effective renewable solutions,” Rode says.

Electric vehicles are being embraced by many European cities. The UK aims to ban sales of new petrol and diesel cars from 2040, and by 2050 all cars should have zero emissions. France has similar targets, while the German chancellor, Angela Merkel, says phasing out internal combustion vehicles will come as soon as “structurally possible”. Norway has set an ambitious target of ensuring that all new cars and vans sold in 2025 should be zero-emission.

Justine Bornstein, of Deloitte UK, sounds a note of caution. “With an electric vehicle you’re not always solving all the issues, because there’s a lot of air quality problems with degraded brake pads, the tyres, and the road. That creates particulate matter that is just as bad for you as the fumes coming out of the exhaust pipe.”

The Ford perspective: The future is electric

It is the start of a new era of mobility. Huge advances in technology connectivity and electrification have unleashed a wave of innovation, and Ford is at the forefront. Right across Ford’s product portfolio – from Fiesta to Transit in Europe – the company will offer an attainable electrified option for every nameplate.



SHARING THE ROAD

The challenges of shifting from private petrol-engine cars towards other modes of transport fall into three categories: mass transit modes (trains, trams, buses); non-motorised modes (cycling, walking, non-traditional vehicles) and new transport modes that technology is delivering.

For Kent Larson at the MIT Media Lab, mass transit is a matter of land use and zoning regulations: “There’s a lot of opposition to increasing density, about increasing the availability of housing in the centre of cities, largely because of concerns around traffic congestion and the lack of parking for people who already live there,” he says. He sees the ideal city as a network of high-functioning neighbourhoods, where local journeys do not require a vehicle. Mass transit would connect these neighbourhoods.

Influencers in the Valencia ecosystem pointed to the concept of the “super-block” pioneered in Barcelona, where small groups of city blocks are merged, with internal routes serving only local mobility needs, and trunk roads limited to the periphery.

“In an ideal neighbourhood,” says Larson, “you would achieve some harmony between the available jobs and the available housing. That could dramatically reduce commuting – particularly as work becomes more decentralised. Companies could have satellite offices in different neighbourhoods and still maintain coherence through networking and modern communications.

He calls this vision of housing “living large in smaller spaces”. Crucially, this would also lower the price of housing, now out of reach for many young people – the lifeblood of the city.

There are also opportunities to gain efficiency in public transport thanks purely to sharing information and 21st-century communications, which “offer big potential benefits”, says the architect Michael Pawlyn. “People have got a bit overexcited about things like drones and air taxis. There are much more systematic issues that need to be factored into the discussion first.”

The benefits of digital innovation were echoed by Ford City of Tomorrow Symposium stakeholders. Justine Bornstein, of Deloitte UK, took up this theme in the context of ticketing on public transport. “A lot of cities could quickly digitise their ticketing,” she says. “That will enable smart ticketing, which gives you information

about who’s travelling and where. That allows you to optimise your routes and get more people riding through the system.”

Josep Enric Garcia, CEO of Valencia bus company EMT, puts public transport at the centre of development in urban mobility – in Valencia at least. “Private transport will decrease, and public transport will dominate,” he says. “Everything will be integrated, and public transport will be the public transport of everything. This is city policy. I hope it will stay that way after the next elections! Next year, we will pedestrianise the historical city centre. We will build a couple of big bus stations to make the last step easier for pedestrians, and in those stations we will place other modes of transport – electric bikes and scooters, for example.”

But he admits: “We have a huge cultural problem here. People don’t have much respect for common space. People park their private cars in the bus lane. We are just at the beginning.”

Beyond public transport, influencers of future cities suggested that data sharing could include individual preferences, for an early-morning book club say, or an evening game of cards on the way home from work. They also proposed rewarding drivers for sharing; giving vehicles with more passengers priority at intersections, or better parking spots at the railway station. The Valencia Ford Symposium suggested that data could be fed back to citizens to inform them about the true costs of their mobility choices.

Solutions do not have to be hi-tech. Bornstein points to Curitiba in Brazil, which installed a Bus Rapid Transit system above ground with designated bus-only lanes, which get preferential treatment at intersections. Passengers buy their ticket in advance and board at a platform. “These systems can run 40,000 people an hour – on a bus network. It’s like training wheels for running a subway.” The system now operates in 14 European countries and has also been adopted in the United States.

London delegates suggested using existing infrastructure for new applications – putting autonomous vehicles on the bus-lane network, for instance.

Smart ticketing gives you information about who’s travelling and where. That allows you to optimise your routes

The Ford perspective: Micro mobility solutions -

People’s mobility choices are changing, especially in congested cities. Acquired by Ford in 2018, the dockless electric scooter sharing company Spin is implementing micro-mobility solutions responsibly, safely and sustainably. Spin provides users with an affordable, easy-to-use and electrified transportation option, which simultaneously tackles challenges such as parking and pollution.



KERB YOUR ENTHUSIASM

C ompetition among vehicles for space on a city's traffic lanes extends to the kerb too, where most of those vehicles must eventually stop.

Use of this key piece of city territory has changed through the ages. Centuries ago, a primary use was for draining waste water. Modern sewerage services have removed that source of demand. Today, the boundary between road and pavement is a place for dropping off and picking up passengers if you're a bus or taxi driver, for stopping to make deliveries if you're carrying freight, or for parking more permanently at times when your vehicle is not in use – but this is changing too. With demand for ride-sharing services and urban deliveries rising sharply, using this prime real estate for parking private vehicles is becoming harder to sustain.

As stakeholders clash over access to kerb space and its pricing, city planners are finding it hard to keep up. One reason is that detailed data on current uses of kerb space and likely future demand are lacking. Without such insights, city planners will find it difficult to assign uses to sections of kerb space, so securing reliable data on how demand is changing will be key.

In some areas of the city, this means creating models that can forecast demand to every metre of kerb. Currently data on kerb use is often produced by stakeholders (such as taxi firms), rather than centralised and independent bodies, which makes it hard for public authorities to monitor use. In the future, delivery services

and taxi and ride-share companies might be required to provide data in a shareable format as a condition for receiving a licence.

The way kerb space fits into city revenue models is another complication. Parking charges are a key source of income for most European cities, so replacing parking spots with pick-up and drop-off points for ride-sharing services leaves a potential shortfall in funding. This leaves planners with the challenge of what charges to levy on kerb-side ride-sharing nodes, and how and from whom to collect them.

The emergence of interconnected devices – the Internet of Things – will hugely enrich transport data and make it available in real time, giving far greater flexibility to the regulation of roads, pavements and the kerb space in between.

With better collection and availability of data, kerb access could be assigned and priced in real time by public authorities and made available to users via third-party service providers. A driver could request a parking space, be directed to the assigned spot, and charged for its use via a single app. Similarly, a ride-share company or a package-delivery service could request and pay for kerb space on demand – and presumably pass on the cost to the customer via their own pricing structure.

The Ford perspective: Digital Traffic Flow Management

- Collaborating initiatives such as SharedStreets – a new data platform that Ford, Uber and Lyft joined – are designed to make it easier to work with cities, and are the future of urban mobility. Cities will be able to use this data to find new ways to manage urban congestion, reduce carbon emissions, prevent traffic crashes and prepare for the arrival of autonomous vehicles.

City planners will find it hard to assign uses to sections of kerb space – unless they have reliable data on how demand is changing

COMING UP WITH THE GOODS

The contribution that innovative mobility options such as the PEV – the plug-in electric vehicle – can make to freight delivery will be welcome. US researchers reckon every American generates demand for around 60 tonnes of freight each year. Trucks perform seven per cent of urban journeys, but generate 17 per cent of the congestion costs, leading to disappearing kerb space, streets choked with double parking, and pollution. The architect Michael Pawlyn sets out the picture in London: “Over the last five to ten years we’ve seen huge growth in transporting goods around, often in very inefficient ways, with a huge proliferation of vans, probably less than ten per cent full. With better technology at various stages in that structure, you could achieve huge improvements in the efficiency of delivery.”

Business-to-business freight has been a staple of city traffic since the age of cart horses and drays, but the cause of the recent explosion in freight traffic is the rise in e-commerce and the growing expectation that goods will arrive quickly. Amazon offers a one-hour delivery service in many US and UK cities, and is looking to expand the service to other European locations. This is great news for consumers, retailers and manufacturers, but a headache for city authorities struggling to keep the traffic moving. While high streets are struggling for custom, e-commerce is booming. This is adding to what is called the “last mile” problem – how to get millions of packages from a multitude of suppliers into the hands of millions of consumers.

Should we abandon e-commerce and go back to retail outlets? “I like to take the question back a few stages to look from a strategic perspective,” says Pawlyn. “It’s worth bearing in mind some of the secondary effects of transport choices. Online shopping is eroding the sense of place of some of our towns and cities, and it’s worth asking: is that what we want? We know we like the convenience, but are we factoring in the full implications?” Economists call such implications – costly secondary effects that are not covered by the price the consumer pays for the service – “externalities”. In the case of today’s urban freight market, they are large and growing.

This is one case where autonomous vehicles will provide only part of the answer. They have the potential to lower costs for

operators by removing the driver and allowing more efficient use of vehicles, but autonomy on its own will not resolve the other challenges raised by the proliferation of freight, such as competition for road and kerb space, and the added pollution.

Urban planner Fábio Duarte raises an additional concern: “AV will probably arrive first in goods transportation, particularly long-haul transportation, but the concern regarding urban delivery is that it might be cheaper to keep AV running than renting storage spaces.” In other words, static warehouse space would give way to constantly circulating vans and trucks, an example of that common planning problem: the law of unintended consequences.

Other emerging technologies could provide part of the answer. Many startups are exploring using drones to bypass the roads altogether. Alphabet, the owner of Google, plans to launch a trial service of its Wing drone delivery service this year in Finland, bringing medication, groceries and meals direct to customers.

Other innovations are lower to the ground. Starship Technologies, launched in London by the founders of Skype, is trialling autonomous robots, like ice-coolers on wheels, to bring deliveries to the doorstep over a range of two miles. And when it comes to making sure deliveries arrive in exactly the right place, London-based What3Words has superseded the postal address. It has divided the planet into three-metre-square patches, and given each a unique three-word “address”. This is instantly convertible into a GPS reference, and can be integrated into existing delivery services. (What3Words is Ford’s latest AppLink partner, and so is available via the Ford infotainment system.)

A more profound solution comes in how freight is routed through the city. Pawlyn points to Singapore: “They’re very short of space, so the importance of transport efficiency is really obvious to them, and they’re implementing some of the things we’ve talked about for ten years but haven’t even begun.” Among the solutions adopted by the city state is the concept of Off-Site Consolidation

The ‘last mile’ problem: how to get millions of packages from a multitude of suppliers into the hands of millions of consumers

The Ford perspective:

The last mile

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The growth of parcel deliveries within the city is expected to double in the next ten years, leading to increased congestion and inefficiency.

Ford is trialling a new digital delivery service in partnership with Gnewt to efficiently co-ordinate multiple modes of transport, from foot to bicycle.



The “last 100 metres” is a delivery challenge in high-density cities

Centres. The idea is that delivery trucks from retailers and food companies drop off their cargo at a single site, where the operator – a private contract-holder in Singapore’s case – consolidates packages from numerous suppliers for efficient delivery, whether to retailers or individual consumers. Goods arrive according to who produced them, and depart according to who is receiving them. But the challenge in high-density Singapore is different from in Europe’s sprawling cities. “The problem there is not the last mile – it’s the last 100 metres.”

For older European cities that offer a more dispersed footprint, part of the answer may come from long-term change in the structure of the city itself, with more dense urban centres allowed to develop around the central hub. As well as easing the last-mile problem, this would address other challenges facing mobility and the quality of life in general. “A compact city is much better in all sorts of ways,” says Pawlyn. “It’s more socially cohesive, people tend to live more healthily, they don’t need to own a car, and it’s perfectly possible to plan parts of cities so that you can access all your goods and services within a short walk. That’s a much better way to live than an urban sprawl.”

**The Ford perspective:
The Plug-in Hybrid
Transit Custom Van**
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Globally, more than four billion people live in cities, and the growing popularity of EVs is contributing to successfully reaching cleaner air targets in congested, urban environments. Designed to help improve local air quality, Ford’s new plug-in hybrid electric (PHEV) Transit Custom vans are participating in a 12-month fleet trial across London, Valencia and Cologne.

POWER OF PERSUASION

A ll potential solutions must overcome a common hurdle before they can be implemented: persuading stakeholders to accept, to fund and to embrace them.

Public policy faces this issue on two fronts. First, those with responsibility for selecting and funding innovations must be persuaded of their merits. Second, the urban authorities must then sell the schemes that they have adopted to the public – that notoriously fickle stakeholder group.

A new generation of data-driven visualisations is making planning decisions more evidence-based and intuitive, rendering the job of selecting from among competing projects a little easier. One way to start this dialogue is to use some of these methods in basic form, for example, sharing LEGO blocks to facilitate discussion of mobility “blockers” and solutions – methods that actually form the basis of this report. But the state of the art visualisations are somewhat more sophisticated.

Ira Winder, MIT’s Technical Instructor of Urban Science and Planning, is a specialist in the field. The key to his work is combining imaginative visualisations, computer power and hard data. “We use computation to establish what is concrete fact within a realm of scenarios that we could implement,” he says. One recent example of this technique at work was in the community of Dorchester in Boston, where local leaders are in a conversation with the state about whether to build a Bus Rapid Transit (BRT) corridor. “Current questions are: why are we getting a Bus Rapid Transit corridor and not a subway? Will this increase the commute time to downtown? Will this hurt the aesthetics of our community? Will this make it harder to park and drive?”

The aim was not to recommend a policy, but to “help the city and experts to decide the best BRT configuration. We spent our energy building an exhibit that would allow the more non-expert people on the ground to see and imagine what it might look like if a BRT was implemented. We weren’t affecting the final decision but bringing all the stakeholders on to the same page.”

In other words, the emphasis was on a visualisation that would bring a complex technical issue to life for non-experts.

The key to this technology is the availability of data. “Over the

last ten years we’ve gone from having data locked up in proprietary systems to where the standard for research is using datasets like OpenStreetMap [a free, crowdsourced database of geospatial data]. OpenStreetMap is sometimes more accurate than any data I could get from the City of Boston.”

When it comes to satisfying a general public that wants everything now, but is reluctant to make the trade-offs necessary to bring new projects to life, there will always be sceptics. But they are more likely to come round if they can see persuasive demonstrations based on credible evidence. An ability to build accurate models of the real world that allow planners to experiment, and stakeholders to visualise the outcome of policy decisions, is a boon to effective urban design that users will accept.

Kent Larson at the MIT Media Lab, says: “If you present people with the value proposition in a way that they can understand, then they will accept new things – particularly younger people who are more open to new ideas.” Rob Whitehead, of the UK’s Future Cities Catapult initiative, reinforces the point: “It’s important to co-create with citizens. It’s time- and energy-consuming, but it can lead to good results.”

He stresses the importance of listening to users. “Keep feedback channels open,” he advises. He cites London’s “bendy buses” – double-length vehicles articulated in the middle that struggled to negotiate the city’s tight junctions. “The public, especially cyclists, didn’t like them. The next Mayor scrapped them.”

Delegates in Cologne underlined the trade-off between the need for data, and public trust in the service providers harvesting it. Laws that put citizens in charge of their data would go a long way towards overcoming this trust issue.

Sceptics are more likely to come round if they can see persuasive demonstrations

ALL TOGETHER NOW

All these solutions require, above all, that stakeholders work together to bring efficient, sustainable change.

Collaboration in urban planning decisions was always desirable, but in an increasingly interconnected and complex urban environment, it has become vital. “The internet is pushing us beyond the Knowledge Economy, into what I would call the Collaboration Economy,” says Rob Whitehead, of the UK’s Future Cities Catapult initiative. “Nowhere is this more pertinent than in the complex cross-sectoral challenges in evolving our transport systems. It can’t be done alone. Structures and forums for bringing together private and public interests are crucial. Too public led, and the dynamism of private innovation is stifled; too private-sector led, and the public interest will not be defended or promoted.”

Whole professions are changing in response. Architecture provides a good example. “The very notion of what is ‘architecture’ is in transition,” says Usman Haque of design firm Umbrellium. “Where architecture used to be just about buildings and to some extent the space between them, it’s now just as much about the systems and technologies that bring those buildings and spaces to life.” This is vital in resolving challenges in urban mobility because “it is the aspect of cities that is most constrained by systemic friction or liberated by systemic efficiency. It’s not simply that architecture is key to resolving mobility issues, but that mobility issues underpin exactly what architecture is today,” he says.

Collaboration also means crossing the divide between public officials and private entrepreneurs. “What’s really interesting is the tension in mobility initiatives that is playing out between civic/public infrastructures and corporate startups,” says Haque. “It’s a truism now that startups are better at innovation, but they have a huge amount to learn about how cities are made and evolve.”

So the innovative power of the private sector will be central to driving new approaches to tomorrow’s mobility challenges. But it is the public sector, with the democratic authority that it wields and the power it holds to seek a popular consensus, that will always hold the trump card in shaping cities. “Ultimately, I believe it is the role of public transportation networks to deliver the biggest changes to urban mobility, and there are dozens of

reasons to believe that venture-backed tech startups cannot deliver these in the long run,” says Haque.

Collaboration also means more diversity, both in terms of the expertise that urban planners can draw on and the solutions they will choose, because no single solution will emerge. “I’m no longer sure, given the experiences of the last century, that any single mode or emerging general purpose technology will be as dominant as the motor car has been,” says Scott Cain, of RunFriendly.com. “A more mixed streetscape will return. I see active travel – walking, running, cycling and scooting – for their health and wellbeing outcomes, combined with sustained investment in public transit as the core to urban mobility. This will be supplemented with mostly slow and boring autonomy, a variety of drones, new forms of zoning etc.”

For many new technologies, stakeholders will need to work together to integrate them into existing infrastructure. “Continued collaboration across industries will be critical in making autonomous vehicles ubiquitous,” says Paul Newman, of Oxbotica, a UK-based company developing software for self-driving cars. “City traffic authorities, software developers and vehicle manufacturers are among the players that need to work effectively together to develop this technology and make it both feasible and safe.”

Visions of luxurious self-driving cars are short of the mark. “Fast-moving Teslas will not have any greater rights in most areas than pedestrians,” says Cain. “Ride-sharing will grow, but not dominate, while data and AI will inform almost everything.”

Whichever solutions cities deploy for the next generation of city travellers, they should do so with one eye on the generations that follow. “Any urban system’s deployment, for mobility or otherwise, is only a ‘temporary’ deployment”, says Haque. “The key is to think about how what you are deploying now will evolve and become something different.” The planner’s job is never really finished.

The Ford perspective: Collaboration is key

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Our cities will become increasingly “smart” over the coming years as advances in technology accelerate. Platforms such as Ford’s City of Tomorrow bring together a range of senior city stakeholders to explore new ideas and – crucially – build trust among the innovators and the cities they operate in for a better mobility future for all.



CONCLUSION

How to get us there

Those who live and work in our cities face a wide range of obstacles to moving themselves and their goods around the urban environment. Transport networks can be prohibitively hard to use for some who need them most. Legacy infrastructure is not easily adaptable to new ways of getting around. The sheer weight of demand overwhelms networks, creating congestion that defies the very point of mobility and generates pollution that challenges public health and safety. But the same productive energy that attracts this overflow of traffic to cities is bringing forth a wide range of promising solutions.

Innovative collaboration is as much a signature of the modern city as cars, buses and underground trains. Planners are presented with a range of options running from new technologies (and new adaptations of old ones) to new processes, including ways of gathering and providing information to make transport more efficient and help users come to terms with change.

The technological solutions revolve mainly around four concepts:

- **Electrification**
Shifting from internal combustion engines driven by an onboard supply of fossil fuel to electrically powered vehicles driven by sustainably produced energy generated far from the city.
- **Ride sharing**
Using smartphone apps to pool the needs of travellers – increasing the ratios of passengers to drivers, and making each journey more efficient.
- **Autonomous vehicles**
Removing drivers altogether by teaching vehicles to drive themselves.
- **New modes**
Introducing innovative vehicle designs on four, two or no wheels.

Getting people from A to B is one of the two big mobility challenges. The other is distributing the goods and services they need when they get there. The businesses at the core of the urban economy are nodes in complex supply chains that can lead halfway round the world. The final consumers of many of these goods are city dwellers, who increasingly expect delivery to the doorstep.

This flow of goods around the city is another source of competition for precious network capacity and the kerb space that connects transport networks to workplaces and homes. All the technological solutions outlined above have a role to play, but there is another great area of innovative solution: processes.

Process solutions are new ways of planning and organising mobility in the city to increase efficiency, accessibility and safety, and to draw together stakeholders in the planning process. The common denominator is data: collection, interpretation and use. Data platforms such as Ford's Transportation Mobility Cloud aim to provide a common language for a city's transport networks to share information on who wants to go where and when, and to co-ordinate transport modes to provide the most efficient solutions.

Data also provides the fuel for better planning decisions, allowing planners to generate visualisations that explain proposals in clear terms to stakeholders. Modern data visualisations can provide the means to win support for a mobility solution.

Mobility service providers, planners and users can no longer work in isolation or competition. Collaboration is key to making use of the opportunities that new technologies and processes offer in the fast-changing city environment.

THE FORD VIEW

Making the connections

Solving the challenges that face us requires realism about the trade-offs between the world that we want and the world that we can deliver. Of all the barriers to mobility this report identifies, the tendency of citizens in many European cities to think in terms of “I” instead of “we” is the key stumbling block. There is also a balance to be struck between innovation and legislation – innovators want space to try out ideas, while legislators, guardians of the public interest, are reluctant to give them the freedom they seek. Innovators will always push for flexibility; legislators will always apply the brakes.

Another overriding theme is the need for collaboration. This is not new; nothing important gets done without people working together. But as competition for resources – mobility among them – heats up, there is less room than ever for stakeholders working in isolation. Our cities need integrated solutions, so planners, innovators, users and builders must join the dots.

Ford is an enthusiastic partner in the collaborative effort to make tomorrow’s cities havens of smooth mobility. Ford is known as the company that has brought freedom of movement to the masses – and as cities have grown, this mission has become more central to building quality of life for everyone. However, Ford’s mission is currently changing, just as the demands of the modern urban environment are changing. From the hardware focus of the “any colour as long as it’s black” days, Ford’s contribution is now widening to embrace software, data and analytics.

For instance, while Ford is still a market leader in commercial vehicles, the software model that the company is currently trialling for last-mile delivery means that cities will potentially have fewer delivery vans on the road through improved productivity, while consumers get from quicker and more sustainable deliveries.

Our cities face common issues and have an exciting pool of emerging solutions to consider, but each city is also unique. Events such as Ford’s City of Tomorrow Symposiums bring out the common threads, but they also allow each city to look at itself – and to reflect on its own roadmap for the future.

Gatherings like those organised by Ford provide common ground where stakeholders can reach an understanding of each other’s interests and see the world from a different point of view. They bring innovators face to face with legislators, and user groups with the planners setting out mobility networks of the future.

And, crucially, they begin to narrow the distance that separates the “I” from the “we”.

Sarah-Jayne Williams, Director of Mobility at Ford of Europe

Crucially, events like Ford’s City of Tomorrow are beginning to narrow the distance between the ‘I’ and the ‘we’

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ABOUT US



As the global population grows, more people are moving into cities. And the way they move around their cities is changing faster than ever. Ford Mobility designs, grows and invests in emerging mobility services and connectivity solutions. Our aim is to deliver new transport initiatives and address urban transportation challenges. Using technology, innovation and a collaborative approach, we want to improve the way people and goods move. Our cities face common issues and have an exciting pool of emerging solutions to consider, but each city is also unique. We want to help them find unique solutions.



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