It is not enough to connect devices together, if the human remains on track, said trend researchers and Mercedes-Benz Consulting Customer Management experts. The numbers speak for themselves: In 1900, 10% of the world’s population lived in cities, compared with 55% in 2007, and by 2050, it is expected to be 75%. More than half of all city dwellers worldwide live in Asia. The strongest is the city boom in India, China and Nigeria. The cities in these three countries alone must absorb a good third of the influx of people who are moving from the countryside to the city by 2050. “Within the next 10 years, the number of megacities will increase from 33 to 43. That’s where global comes in”, explains Robert M. Häusler, Management Consultant at Mercedes-Benz Consulting (Figure 1).

Many people entering the global middle class will want to buy cars: automobile sales are expected to increase from about 70 million a year in 2010 to 125 million by 2025, with more than half forecasted to be bought in cities. Some automotive analysts have gone as far as predicting that on the existing trajectory, today’s 1.2 billion strong global car fleet could double by 2030. The existing urban infrastructure cannot support such an increase in vehicles on the road. Congestion is already close to unbearable in many cities and can cost as much as 2-4% of national GDP by measures such as lost time, wasted fuel, and increased cost of doing business. Transport creates emissions of greenhouse gases; smog presents
serious public-health concerns. The World Health Organization estimated in 2014 that seven million premature deaths are attributable to air pollution, and a significant share is the result of urban transit.

Urbanization raises important questions about the future of mobility

“Urbanization is just like Globalization, Silver Society Individualization, Sharing Economy, Mobility or Networking - one of a total of twelve megatrends that we are currently observing”, the so-called Megatrend Map, which can be displayed behind a greater Smart City view and the topics “Connected Transport, Connected Cities” (Figure 2). Cities are unique places, the vibrant ecosystems of innovation, and they raise important questions about the future of mobility in terms of urbanization: how do people and inhabitants of a city get from A to B, how do goods transport and commute to work? What sustainable contribution can smart spaces and intelligent smart buildings make, and how can and should physical and digital infrastructures be combined to ultimately interact seamlessly, quickly and securely?

Urban Mobility is one of the toughest challenges that major cities face today, as it often determines the quality of life in cities. However, Mobility is not just about getting people from point to point. It’s about respecting citizen needs and behavior, connecting people, places and goods in the most effective way while reducing waste, congestion and minimizing urban pollution.

![Megatrends map](source: Zukunftsinstitut GmbH 2018 FFM, Mercedes-Benz Consulting I Customer Management)

From the Smart City to the Mindful and Citizen Centric City (CCC) - Connectivity in the age of individualization

The Smart City movement presents cities with the opportunity to build and plan Citizen Centric City (CCC) - smarter & mindful, developing citizen-centered, tech-enabled living, working and playing spaces that respond to people’s changing desires and needs - that are “future-proof” and “user or citizen-centric”. Technology is redefining the future of education, work, transport and ultimately how people live their lives. This will create tremendous opportunities to provide better services to citizens. It also raises fundamental questions that should not be left to tech giants in Silicon Valley to answer. Digital and interconnected cities, communities and citizens can be at the heart of this change (Figure 3).

Solving the connectivity challenge will require bold, coordinated actions from the private and public sectors. Technological advances and commercialization, funding, intelligent policies, and business-model innovation are needed to realize productivity improvements while creating more sustainable environments in the cities to avoid a future of global gridlock. Rapidly
advancing interactive connectivity technologies and their increasing use by citizen and users have unprecedented and unavoidable impact on cities and metro areas and how they should be managed. The role of cities in the contemporary age of digital connectivity is being elevated and simultaneously shifted. Already, there is an obvious movement toward new “multimodal” services - those that facilitate citizen journeys - as well as shared transportation services with a maximum of connectivity.

Within a few years, that is certain to evolve connectivity in a different direction. We can expect to see autonomous motor vehicles as one component in an interconnected network for roadway management - a network that may be as revolutionary in changing the way we move goods and people as the Internet has been in communicating information. The comparison between a vehicle network and the World Wide Web is particularly apt, because we are already referring to machine-to-machine communication as part of the Internet of Things. The transportation industry, partly energy industry and OEM’s will implement this connectivity of machines by building not only Smart Automobiles, but Smart Cities environments that interact with the vehicles rolling through them. With connected vehicles, that technology can smooth out urban traffic flows, synchronizing vehicle movement, as well as stoplight cycles, cutting travel time through more efficient routing, and delivering better results in fuel consumption, while reducing airborne pollution and the production of greenhouse gases. A coordinated, synchronized traffic flow can and will also sharply reduce accidents and collisions.

Networking - with whom or what?

With the proliferation of fast Internet connections and super-fast cloud-based mobile networks as the 5G, it has never been so easy to be constantly online and connected today - with the new digital mobile network this should be possible. This is very interesting not only for the private households and city governments but also for the automotive industry. Nevertheless, does that make a city, a citizen or a home smart?

Studies by Mercedes-Benz Consulting point out that somewhere on the way to a networked world; the connection between the individuals has been lost sight of. It would not add much to the quality of life or social impact when a vehicle communicates e.g. with the online grocer or other vehicles on its own - but the individual communicates with them. “Today, we have more options than ever to connect - but, paradoxically, more and more ways not to do it when we talk about the constant availability of technology”.

“The digital future only works if connections - and ultimately also relationships and the experience - work between people, communities and the city,” is the thesis of Mercedes-Benz Consulting. Not only does this necessarily have to be in public squares and retail areas, it would also be a new opportunity for inter-personal communication in innovative public transport systems with autonomous means of transport. “Digitalization alone is not smart yet. Rather, it is crucial to exchange the knowledge of people - and to use it intelligently”.

Data is the key to improved mobility

Regardless of whether people or goods are transported, data is the key to improved mobility and work-life balance in the cities and metropolitan area as a whole. That is why researchers, OEM’s and universities are developing ingenious new, integrated and networked traffic concepts based on platforms. Once a shared service platform is created, the opportunities are endless. The sharing of information between services can be used for anything; from easing traffic congestion to saving lives. Imagine that a reckless driver was to cause a traffic accident which badly injures the driver of another car. CCTV, recognition hardware and flying drones footage could be shared with the police and relevant insurance parties, a transportation service could reroute the traffic based on real-time data and a nearby ambulance could be alerted to the incident, immediately pulling up the driver’s medical history so that he/she receives the best possible medical care. While we may not be quite there yet, certain elements are beginning to be put into practice.

Daimler’s new urban mobility concept is autonomous, electric, modular, and smart

Daimler wants to make the mobility of the future safe and sustainable - with trend-setting technologies, outstanding products and tailor-made mobility services. The Daimler Urban Mobility Vision based on becoming a key partner for cities offering smart mobility solutions. There are many different technologies, solutions and ideas and a individual city master plan. So, the future
Digitalization & Implementation — Use Case field Urban Development and Data flow – Smart Mobility, 3 phases of mobility

(Source: Mercedes-Benz Consulting)

Smart Data Management within the Senseable CityLab of Mercedes-Benz Consulting

(Source: Mercedes-Benz Consulting I Customer Management)

will result in a number of interconnected solutions that work together cohesively. Key words are autonomous driving, electro mobility and mobility concepts, whether in individual transport or in transport logistics (Figure 6).

An example is the urgent problem of congestion. Through traffic jams and parking search traffic, the economy is losing billions. Therefore, cities are testing new holistic approaches to a multimodal, multi-level and interconnected traffic concept rather than simply building extra lanes. A solution-oriented and future-oriented approach, is e.g. the German VTOL start-up Volocopter (in which Daimler is involved as an investor), which has already carried out test flights in Dubai with its air taxi.

In addition, cities are searching solutions for the last mile and increased for the first mile, e.g. station-independent, free-floating car sharing offers such as car2go from Daimler, open to. Studies show that flexible car sharing relieves traffic in the cities, creates more parking space and sustainably improves air quality, and that this growing sharing economy is paired with electric drives and autonomous vehicles.

To bring merchandise to merchants and orders to consumers, cities such as Washington, D.C. also deliver robots like that of Starship Technologies. The start-up, in which Daimler is involved as an investor, plans to deploy 1,000 of its robots by the end of the year, not only in the city, but also on company premises.

With Vision URBANETIC Mercedes-Benz Vans eliminates the separation between people moving and goods transport. It enables on-demand, sustainable and efficient movement of people and goods - an applies an innovative approach to fulfill the needs of cities, businesses from di-
verse sectors as well as city dwellers and travelers. The concepts reduce traffic flows, relieves inner-city infrastructure and contributes to an improved quality of urban life (Figure 7).

With Mercedes-Benz VISION VAN new technologies are improving transport logistics. Drones, intelligent doors, camera systems and the newly developed CoROS (Cargo Recognition and Organization System) will make the work of van drivers and fleet managers easier in the future.

This intelligent camera-supported system recognizes and registers parcels automatically by means of their barcodes in fractions of a second. This integrated logistics and mobility system features a fully automated cargo bay, built-in drones for autonomous air delivery, software to optimize transport routes and joystick control. A Sprinter VAN that is used for air delivery is equipped with one or two landing sites and a flap opening mechanism in order to unload parcels from the drones and, if necessary, load parcels into them. In addition, it includes a storage space where the drones are kept if they don’t have to be sent out again immediately. Thanks to this innovation, the flight plans for the drones can be organized flexibly. This is especially necessary for megacities. Thus, vehicles, services and the entire integrated mobility concept – today known as Mobility-as-a-Service – have long been part of a digital ecosystem digital ecosystem with citizen centricity. Accordingly, the Mobility & Connectivity range of topics is in the triangle of Vehicle & User - Cloud & Data - Connectivity & Sharing.

What makes urban life more enjoyable?

As a European city’s recently unveiled mobility plan Vision 2028 states: “The current system is inefficient: limited street space is largely given over to single-occupancy vehicles, which are too often stuck in traffic, while the most disadvantaged members of our community are confined to a patchwork of transportation options that frequently fail to meet their basic mobility needs.” Working on a planed sharing, electric and autonomous will be combined towards an efficient, comprehensive, seamless & efficient mobility environment serving city needs.

It’s a diagnosis that would fit many of today’s cities, and it’s also an invitation for new, public-private partnerships to get things going. One promising solution is to present citizens with the full range of mobility options, regardless of mode or service provider, in one vision an app and approach at a glance, something the e.g. Daimler subsidiary moovel has been working on (Figure 8). Just as urban life is varied, the list of innovations is open-ended. Whether it’s installing benches around town that display hyperlocal news, offer free Wi-Fi and built-in, solar-powered USB chargers or whether it’s experimenting with public transit models on step-by-step wise that are “demand-responsive” instead of sticking to predetermined stops - those experiments demonstrate how public agencies can work hand in hand with tech and entrepreneurs, strategic partners and citizens.

Conclusion

So far, for many people, the car is the key to self-determined and comfortable mobility. In addition, OEM’s like Daimler have come to do just that: by combining new technology and innovations, sharing and smart business models, they create sustainable, easy mobility offerings - as comfortable as a car, providing spontaneously available, stress-free solutions for individual mobility needs and behavior - and start in the cities and metropolises “Connected Transport & Connected Cities”.

Creating a seamless mobility environment
(Source: Mercedes-Benz Consulting)
A robust network of devices, vehicle and connectivity across a Smart City, Citizen, IoT’s and Communities: a robust enterprise & city mobility management solution, connectivity standards, security rules and social impact philosophies, that guarantees the end-to-end management of all connections and citizen journeys. The opportunities presented by Smart Cities, Future Citizen Centric Cities and companies for both citizens and businesses are both exciting and they are endless. With proper implementation, a well-managed infrastructure, a robust EMM and connectivity solution and plenty of imagination, smart cities could provide huge economic, cultural and social advantages for their citizen; each and every one of us has an exciting future ahead.

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