

**PATHWAY // TRANSPORTATION & MOBILITY**

**WE CAN  
KEEP ON  
MOVING,  
SMARTER**

**TRANSPORTATION AND MOBILITY HELP DEFINE THE RANGE OF PRODUCTS, SERVICES AND EXPERIENCES THAT PEOPLE HAVE THE OPPORTUNITY TO ACCESS AND ENJOY.**

Transportation involves the movement of people, animals and goods from one place to another across land, water or air. The concept of mobility centers around providing people with safe access to the people, places, goods and services they need to live a healthy, happy and fulfilled life. The transportation and mobility system includes the vehicles, services and infrastructure needed for a range of transport modalities – from walking and biking, to driving, flying and shipping.



**OUR 2050 VISION**

**FOR TRANSPORTATION & MOBILITY**

**SAFE, ACCESSIBLE, CLEAN AND EFFICIENT TRANSPORTATION OF PEOPLE AND GOODS**

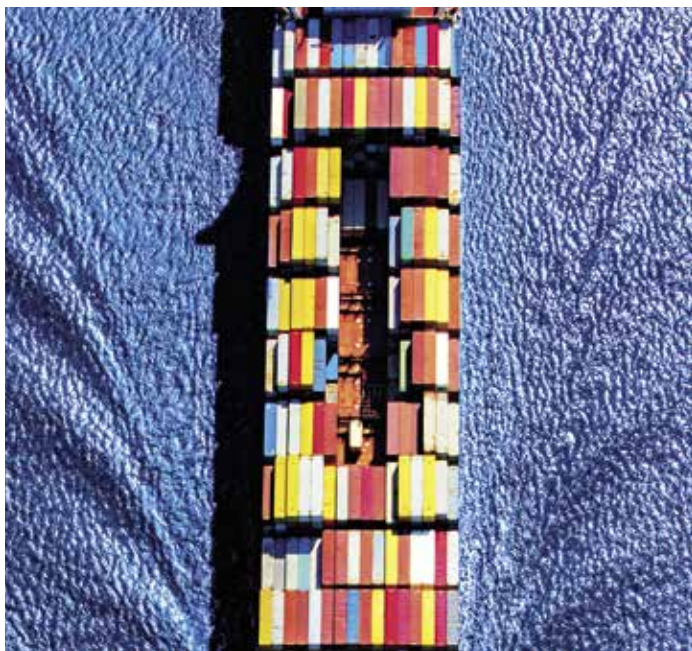
**MOBILITY ENABLES OPPORTUNITY FOR ALL**  
Accessible, affordable, high-quality transportation options allow both urban and rural populations to access social and economic opportunities. People’s mobility needs – including access to other people, places, goods and services – are met regardless of gender, age, ability, socio-economic status or geography. Global transportation infrastructure is connected, optimized and resilient, and forms the foundation of dynamic local, regional and global economies and communities.

**HEALTH AND SAFETY ARE PARAMOUNT**  
The number of transport-related fatalities is close to zero. Transportation systems are designed and operated to protect the health and safety of all people and enhance quality of life in communities. Autonomous capabilities and connectivity across vehicles and transportation infrastructure help to maximize road safety and reduce risk of injury. Air and noise pollution and their impact on health has been widely eliminated through collective action in cities around the world, and more active mobility choices foster enhanced health and wellbeing.

**TRANSPORTATION IS CLEAN AND EFFICIENT**  
The transportation of people and goods respects planetary boundaries and safeguards the regenerative capacities of the environment. Innovation in battery- and fuel cell-powered electric vehicles, renewable fuels, and highly fuel-efficient and hybrid engines have made net-zero transportation with no associated air pollutants a reality – including in heavy freight, shipping and aviation. Infrastructure and vehicles are connected and operate as part of an optimized mobility system. Circular and sharing economy approaches have helped to reduce demand for assets, materials, energy and water. People are aware of the environmental impacts of transportation and make sustainable mobility choices.

**TRANSPORTATION SYSTEMS RESPECT PEOPLE AND COMMUNITIES**  
Human rights are protected and respected throughout transportation and mobility value chains. Infrastructure and urban planning processes protect the rights and foster the wellbeing of local communities. The transition to new transport modes has been just, fair and inclusive, accompanied by the reskilling and upskilling of workers globally. Legal and policy frameworks have been reimagined to support the rights of workers in the transportation and mobility areas of the gig economy.

# KEY TRANSITIONS



## BATTERY, LOW-CARBON FUEL AND EFFICIENCY INNOVATIONS DECARBONIZE TRANSPORTATION

- By 2050 all vehicles have zero carbon electric drivetrains as technology improves, costs decline and the policy landscape shifts. Passenger battery electric vehicle (BEV) sales rise exponentially, while sales of internal combustion passenger vehicles peak and decline well in advance of 2050.
- Hydrogen-powered fuel cell electric vehicles (FCEVs) complement BEVs, particularly for heavier vehicles and long-distance transportation.
- Heavy-duty land transport transitions to zero-emission drivetrains.
- The decarbonization of fuels and a focus on engine efficiency lead emissions in shipping to drop.
- Hydrogen, electric and low-carbon fuel replaces petroleum-based fuel consumption across the aviation industry, spurred on by new industry regulations. These efforts are supported by innovations in new lightweight materials.
- Efforts to restructure global value chains and optimize patterns of freight movement enable drastic reductions in the carbon intensity of logistics.

## INFRASTRUCTURE DEVELOPMENT AND PLANNING PAVE THE WAY FOR SUSTAINABLE, RESILIENT AND INCLUSIVE MOBILITY

- Efficient inclusive transportation infrastructure connecting urban and rural areas is expanded and upgraded globally, supported by the emergence of new funding models.
- Public authorities focus on maintaining and enhancing the quality, viability and resilience of urban public transit infrastructure.
- Urban development centers around lower-impact modes of transport. Pedestrian and cycle paths provide efficient, safe and healthy alternatives to cars. Urban planning also integrates dedicated spaces and infrastructure for non-motorized vehicles, personal electric micro vehicles and ride-hailing and car-sharing accessibility.
- All new transport infrastructure is designed and built with a focus on long-term resilience to natural, social and health-related shocks. Existing infrastructure is assessed for resilience and upgraded or retrofitted as needed.
- Urban planners and builders adopt and standardize vehicle-powering technologies such as electric charging infrastructure, hydrogen and other low-carbon fuels. Electricity grids are upgraded to meet escalating charging demand from net-zero energy sources.
- Innovations in infrastructure and traffic management systems enhance road safety and help reduce road traffic injuries and deaths to close to zero.
- Science-based methods for assessing potential environmental and social impacts of the design, construction and operation of transport infrastructure are mandated and widely deployed, supporting the regeneration of natural and social systems.





**MOBILITY SOLUTIONS DIVERSIFY, SHIFTING MOBILITY HABITS WHILE INCREASING SAFETY, CONVENIENCE AND EFFICIENCY**

- Walking, cycling and personal micro-mobility become the norm for travelling short distances (in cities that are redesigned to ensure essential services are available within close proximity). A range of complementary low-impact vehicles and shared mobility options are available for longer journeys.
- Sustainability-proven, convenient and comfortable mobility service providers such as taxi, ride-hailing and car-sharing companies become a central part of the mobility ecosystem. Technology helps to merge them with public transit into integrated mobility-as-a-service service offerings.
- Individuals become more aware of the environmental and social impact of their mobility and transportation behaviors and choices, while policymakers ensure that the price of different mobility options reflects environmental and social externalities.
- Employers and employees embrace teleworking, reducing global demand for travel as well as easing rush hour congestion and overcrowded public transport, and decreasing the amount of time people spend commuting. Companies continually challenge themselves on the need, frequency and mode of business travel.
- Employers also widely adopt sustainable corporate transportation and mobility policies such as electric fleets, vehicle sharing and incentives for walking, biking and using public transport.



**CIRCULAR OPPORTUNITIES ARE UNLOCKED AND SCALED ACROSS THE TRANSPORTATION AND MOBILITY SECTOR**

- Circularity is incorporated into all phases of design, sourcing, production and operations in relation to transportation and mobility.
- Markets for recycled automotive, aviation and shipping materials are scaled rapidly, and end-of-life segregation and upcycling is made possible at low cost, fostering new economic opportunities.
- As automotive supply chains transition to more circular models, vehicle distribution and maintenance networks diversify to become re-manufacturing hubs.
- A thriving market for recycled batteries emerges that recovers nearly 100% of battery materials.

**SELECTIVE DEPLOYMENT OF AUTONOMOUS VEHICLES ENHANCES EFFICIENCY, SAFETY AND ACCESS**

- Zero-emission autonomous passenger vehicles are deployed in shared fleets in urban areas where traffic is controlled and predictable, enhancing road safety and efficiency.
- Autonomous goods management in warehouses – as well as autonomous, electric last-mile delivery – increase efficiency and resilience, while reducing emissions.
- Long-distance freight truck platooning increases fuel efficiency and road safety.
- Light-freight electric delivery drones enhance access to essential goods and services for remote populations.
- Autonomous vehicles and their inbuilt software are designed and enhanced to ensure that errors and unanticipated behaviors do not result in death or injury.

## DATA-SHARING IMPROVES URBAN MOBILITY SYSTEMS

- Information and communications technology innovations and new standards for data acquisition, sharing and analysis allow for more connected urban mobility and logistics.
- Connected vehicles and infrastructure enable more efficient, effective intermodal logistics, urban planning, infrastructure and air quality management.
- Regional data-sharing models proliferate and transform the way mobility systems are conceived and managed, ultimately making mobility safer, cleaner, more efficient and accessible.
- Governments adopt policies that encourage ethical, cyber-secure and privacy-bound data aggregation and sharing in the context of transportation and mobility.
- Data-sharing allows cities to identify the solutions that best support sustainable development and to develop performance-based taxation and subsidy programs.

## MULTI-STAKEHOLDER EFFORTS ENSURE THE TRANSITION TO A SUSTAINABLE MOBILITY SYSTEM LEAVES NO ONE BEHIND

- Social equity and justice are incorporated as central tenets in infrastructure and mobility planning. Fair user fees are employed across all transport modes and shared transport services are designed to be affordable and accessible for all.
- Consistent due diligence, disclosure and remediation in line with the UN Guiding Principles on Business and Human Rights help to address adverse human rights impacts in the mobility and transportation value chains.
- In the face of rapidly expanding demand, stakeholders across the battery value chain come together to eliminate human rights violations and ensure safe working conditions.
- The rise of autonomous vehicles, the transition to electric vehicles, and the emergence of mobility-as-a-service models are accompanied by extensive, proactive and collaborative efforts to address the potential impacts on jobs. Companies take a people-centric approach and engage with and empower workers to benefit from emerging technologies.
- Business works with governments to advance legal and policy frameworks that ensure that the rights of workers in the gig economy are recognized and protected.



## RELEVANT SDGs



- 3.6** By 2020, halve the number of global deaths and injuries from road traffic accidents.
- 3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- 8.5** By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
- 8.7** Take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers, and by 2025 end child labor in all its forms.
- 8.8** By 2030, protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.
- 9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human wellbeing, with a focus on affordable and equitable access for all.
- 11.2** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.
- 11.6** By 2030, reduce the adverse per capita environmental impact of cities, by paying special attention to air quality and municipal and other waste management.
- 12.2** By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.
- 12.8** By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
- 13.1** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
- 13.2** Integrate climate change measures into national policies, strategies and planning.
- 13.3** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
- 15.5** Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

# TRANSPORTATION & MOBILITY

## ACTION AREAS FOR BUSINESS 2020 – 2030

01

Develop and adopt ambitious sustainable corporate mobility policies that foster the electrification of corporate fleets, the highest possible vehicle safety standards, vehicle sharing, active mobility and teleworking.

02

Continue to invest in the development of innovative electric charging and energy storage technologies that can be deployed across mobility platforms, and help to bring passenger battery electric vehicles to market at all price points and segments.

03

Collaborate with governments, cities, industry peers and across sectors on the deployment of connected and interoperable charging infrastructure.

04

Scale the use of low-carbon fuels for long range and heavy-duty transportation.

05

Work with local and national organizations to agree and operationalize responsible data-sharing initiatives related to transportation that create public and private value.

06

Engage in dialogues with policymakers, operators and labor unions to explore potential impacts on employment associated with the roll-out of mobility-as-a-service models, automated and electric vehicles, and innovations in production-line technology. Ensure that workers are engaged and empowered as new technologies emerge.

07

Ensure human rights are respected across transportation and mobility value chains, developing and improving internal policies and systems for human rights due diligence as set out by the UN Guiding Principles on Business and Human Rights.

08

Develop, test and scale economically viable business models for mobility-as-a-service, connected urban logistics and vehicle-to-city connectivity.

09

Develop, test and scale opportunities surrounding circularity in the automotive industry and across the whole transport and mobility system.

10

Develop and adopt guidelines and standards for the roll-out of sustainable transport infrastructure that contributes to the regeneration of natural and social ecosystems.