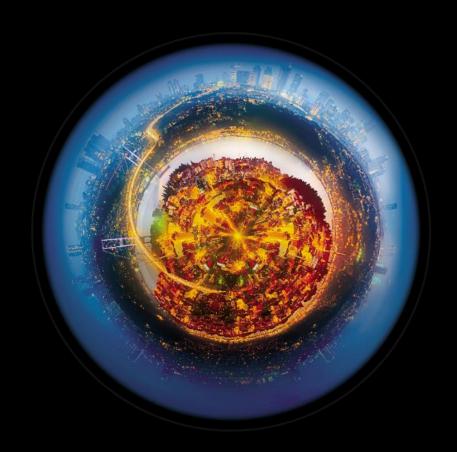
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Future of **Mobility**



Future of Mobility

Vancouver Board of Trade Transportation Summit

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In 2015, Deloitte embarked on a journey to help our clients systematically explore the evolution of **The Future of Mobility** and work closely with them to transform how their organizations and communities can succeed in the new mobility ecosystem

We have been working to accelerate realizing the enormous promise The Future of Mobility offers... More people and goods will move faster, safer, cheaper, cleaner, and with greater accessibility, inclusivity, and equity than ever before

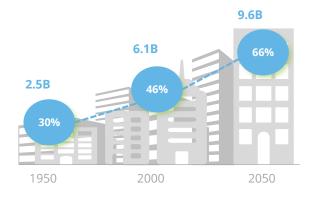
Today, we will explore the evolution of the Future of Mobility, and discuss the range of potential implications the COVID-19 pandemic may have on this trajectory





Challenges to architecting a "fit for purpose" mobility ecosystem

Global **populations** continue to increase dramatically, with **urbanization** also rising...



Private innovations for mobility services are often focused on **single modes** and are uncoordinated. *Innovation must be* coordinated to **solve mobility issues**, not just symptoms.

...Rising **congestion** causes safety issues, **infrastructure** is increasingly strained and rising **inequality** to access limits connections to employment and services.

of the workforce

Strained infrastructure Safety Concerns in GDP could be lost by 2025 due to infrastructure 1.3M road traffic deaths occur globally each of the metropolitan workforce commute for 90+ 73% year Rising Inequality 4.2M deaths annually are linked to outdoor air of the world's cities have higher levels of income 75% pollution, in large inequalities than two decades ago part due to vehicle are in vulnerable employment, accounting for 46% emissions 1.5B

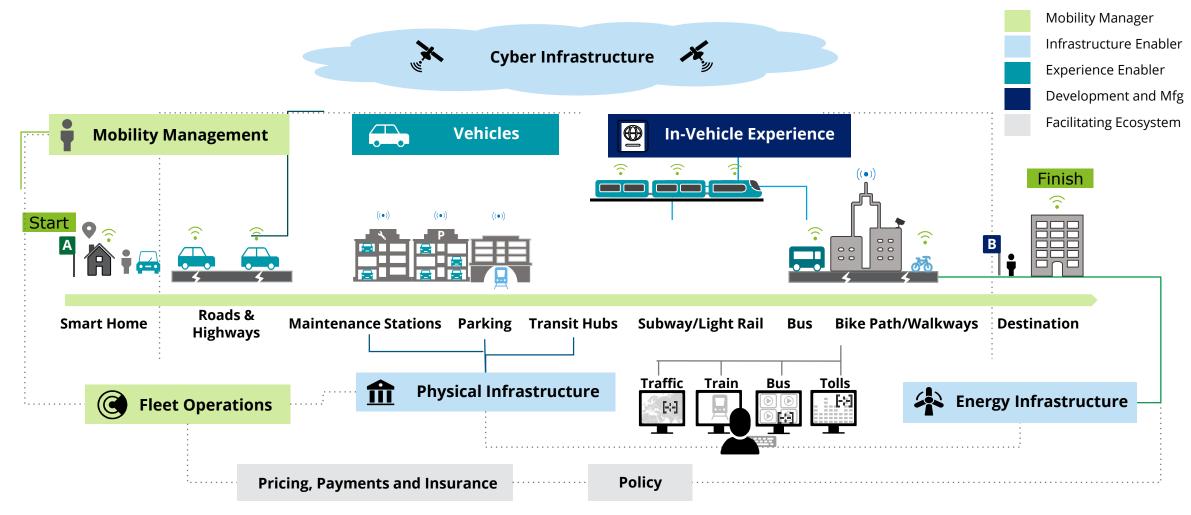






The Future of Mobility is redefining how people move from Point A to B

In response to cities' growing challenges, new mobility ecosystems are emerging with the promise to deliver **seamless**, **integrated intermodal transportation** faster, cheaper, safer and cleaner than today



Source: The future of mobility: What's next, page 11, https://www2.deloitte.com/content/dam/insights/us/articles/3367_Future-of-mobility-whats-next/DUP_Future-of-mobility-whats-next.pdf



Activating Seamless Integrated Mobility Systems (SIMSystems)

For the past three years, we have been collaborating with **The World Economic Forum** to explore how leading cities around the world are activating their respective SIMSystems; while approaches vary, cities ubiquitously must grapple with four centers of gravity



Our common findings across cities:



Political will is a key determinant



A clear vision requires making trade-offs



Governance structures matter



Successful mobility systems require partnerships, funding and talent



Pilots are not always the answer as seamless mobility requires ecosystem thinking



Having data is necessary, but not sufficient

Mobility Centers of Gravity:

Individual Journeys vs. Systemwide Optimization Public Sector Leadership vs. Private Sector Leadership

Data
Openness &
Transparency
vs. Privacy &
Security

City-Regulated vs. Market-Led Innovation

Source: Activating a Seamless Integrated Mobility System (SIMSystem): Insights into Leading Global Practices, Page 11, http://www3.weforum.org/docs/WEF_Activating_Seamless_Integrated_Mobility_Systems_2020.pdf





The future of goods movement is also challenged by lack of integration

Global logistics systems and players across nodes of the supply chain are also adapting innovation rapidly, but are experiencing different variations of similar obstacles causing inefficiency

HIGH FRAGMENTATION

Disparate ecosystems players have limited connectivity to each other; it can take ~30 logistics organizations over ~200 interactions for a simple shipment from East Africa to Europe

UNDER-UTILIZATION

1 in 4 trucks drive empty in the U.S. and Europe and 25% of 8 million U.S. commercial vehicles sit idle at least one day per week

MANUAL PROCESSES

24M hours spent managing freight contract rates globally

DELAY

Ships can spend up to 10 days languishing in backup anchorage waiting to berth



REGULATIONS

Carriers face significant compliance regulations imposed by federal, state and local authorities, including increasing sustainability requirements

FINAL MILE

Immense costs to deliver goods to distinct, and low density destinations

LIMITED END-TO-END VISIBILITY

\$1.7T in estimated annual losses among U.S. retailers due to out-of-stocks and overstocks





Source: How are global shippers evolving to meet tomorrow's demand? Page 5, https://www2.deloitte.com/content/dam/insights/us/articles/4954_FoM-and-movement-of-goods/4954_FoM-and-movement-of-goods.pdf

CONSUMER PREFERENCES

Rapidly increasing e-commerce and expectation of faster delivery



The COVID-19 pandemic is having a massive impact across global transportation and logistics systems

FedEx, Microsoft are teaming up to deliver packages, widening gap with Amazon

Confirmed: Intel is buying urban mobility platform Moovit in a \$900M deal TE

U.K. Government Boosts Bicycling And Walking With Ambitious £2 Billion Post-Pandemic Plan

Seattle to permanently close 20 miles of streets to traffic so residents can exercise and bike on them

Global emissions plunged an unprecedented 17 percent during the coronavirus pandemic to the coronavirus

Self-Driving Startups Face Squeeze as Investors Flock to Big Players RSJ

COVID-19: Still hope for Vancouver's cruise ship season but some lines have cancelled for 2020 VANCOUVER SUN

Hertz, Car Rental Pioneer, Files for Bankruptcy Protection Che New York Clines

Battered Canadian airline industry pushing for government bailout # CBC

New York's MTA Seeks \$4 Billion Bailout as Ridership Plummets Over Coronavirus _{WSJ}

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Twin crises will alter the trajectory of the future of mobility

What

How do public

transit systems

cope?

How many trips will

be permanently

replaced by virtual, remote

alternatives?

COVID-19, the public health response, and the economic fallout are raising fundamental, even existential questions for players across the mobility spectrum

COVID-19

How and for how long will individual attitudes and behavior change?

How quickly does automation accelerate, particularly in goods movement?

How do supply chains shift to become more resilient?

What new health measures will be required in transportation?

Economic fallout

happens How do government to shared rescue efforts affect different sectors?

What investments do companies pull back from?

How does funding for mobility startups and innovation shift?

How do local authorities deal with the revenue crunch?

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The futures of mobility after COVID-19

Scenarios for transportation in a postcoronavirus world

PART OF A DELOTTE SERIES ON THE FUTURE OF MOBILITY

Scott Corwin, Rasheg Zarif, Andrey Berdichevskiy, and Derek Pankrat.

The Future of Mobility practice and Deloitte Insights recently launched a new paper:

Link: https://www2.deloitte.com/us/en/insights/economy/covid-19/future-of-mobility-after-covid-19-transportation-scenarios.html

Source: The futures of mobility after COVID-19, Page 5, https://www2.deloitte.com/content/dam/insights/us/articles/6739_fom-covid/DL_FOM-COVID.pdf





Mobility scenarios look at how people and goods move

Distinct scenarios provide predictions for three to five-year outcomes following the COVID crisis, shaped by <u>duration and severity of the pandemic</u>, and the <u>extent of the government's response</u>



The Passing Storm

The pandemic is contained effectively by governments, but is not without lasting, and uneven, economic repercussions

- Enduring shifts in some mobility trends
- Most providers and governments return to status quo roles
- "Typical" business cycle downturn dynamics play out, with consolidation across the board



Good Company

Governments around the world struggle to handle the crisis alone, with large companies stepping up as a key part of the solution

- **Public goods** (including transport) are increasingly **provisioned** by the **private** sector who **offer seamless transport** for **customers**
- Individuals are open to sharing mobility data with private sector
- Mobility technology advances quickly



Lone Wolves

A prolonged pandemic spurs governments to adopt isolationist **policies**, shorten supply chains, and increase surveillance

- Governments accrue greater authority in combatting COVID-19
- Cities force data sharing and actively regulate mobility via topdown monitoring to meet systemwide goals
- Data privacy cybersecurity give way to increased government oversight



Sunrise in the East

China and other East Asian nations are more effective in managing the virus and take the reins as primary global powers

- Mobility Innovation, R&D and value chains consolidate in the East, to the detriment of businesses in the West
- Robust government data collection becomes the norm to actively manage and address system-wide challenges

Source: The futures of mobility after COVID-19, Page 6, https://www2.deloitte.com/content/dam/insights/us/articles/6739_fom-covid/DI_FoM-COVID.pdf





"No regret" moves

Uncertainty should not be synonymous with inaction. The following are actions and trends we predict will persist, irrespective of which scenario plays out. These will be the basis for our no regret moves - where we play and how we win



Trip substitution via digitization

Telework, telemedicine, and e-learning become the new normal hence the need for mobility is reduced. Mobility is likely to never return to pre-coronavirus levels.



Focus on safety

The concept of safety is expanded to include sanitisation and hygiene.

New measures are implemented in order to minimise contact and verify cleanliness.



Reliance on e-commerce

Health risks of venturing to brick-and-mortar stores coupled with stay-at-home orders accelerate the shift towards e-commerce and the technologies facilitating it.



Reconfigured mobility landscape

Uncertainty across the mobility ecosystem will see business models emerging to solve new use cases and consumer preferences.

Source: The futures of mobility after COVID-19, Page 14, https://www2.deloitte.com/content/dam/insights/us/articles/6739_fom-covid/DI_FoM-COVID.pdf





How do we continue to catalyze our communities and coalesce the mobility ecosystem to develop new solutions and sustainably, inclusively transform our cities?



