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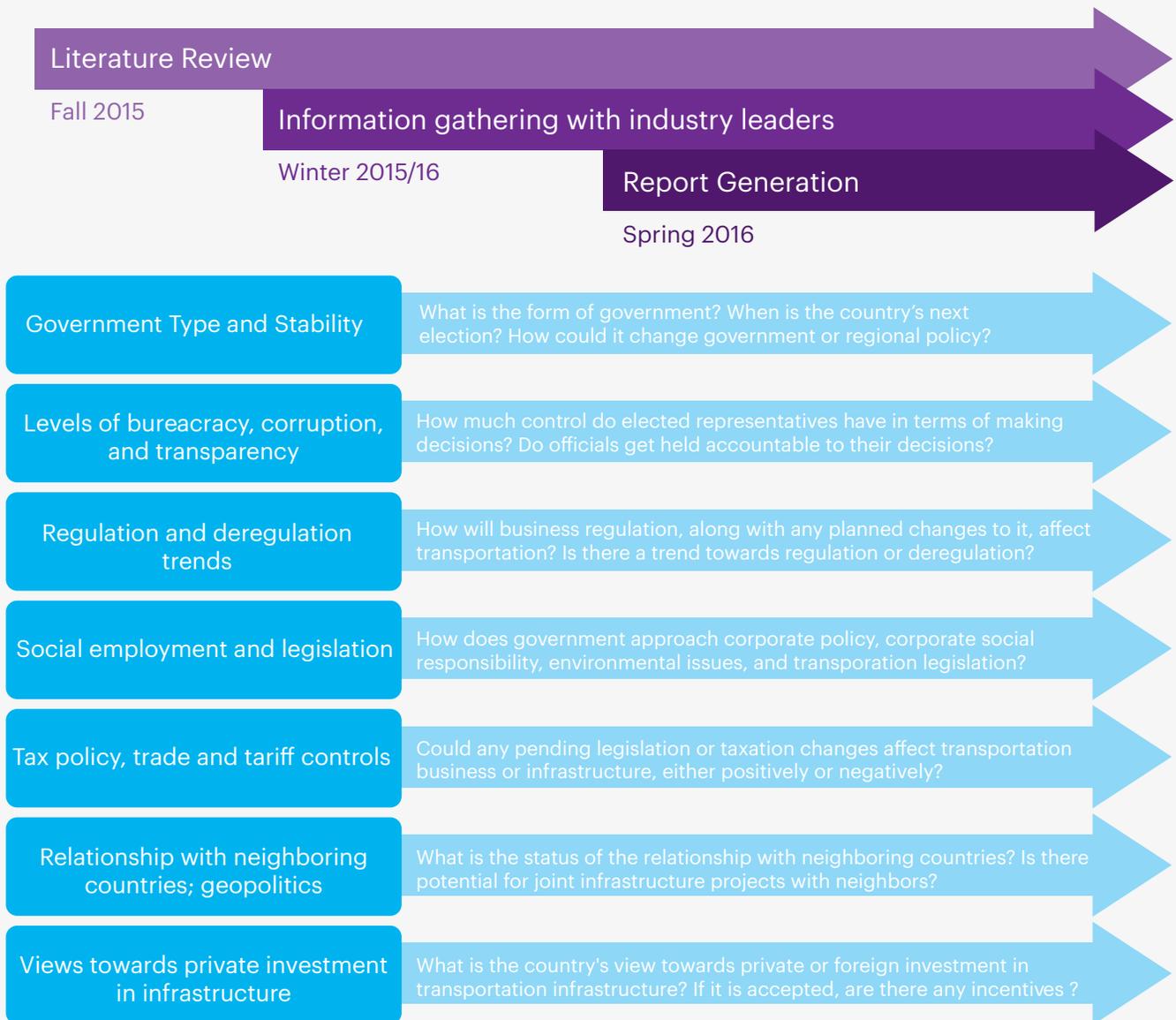
Global transportation analysis

Key takeaways



Politics and treaties

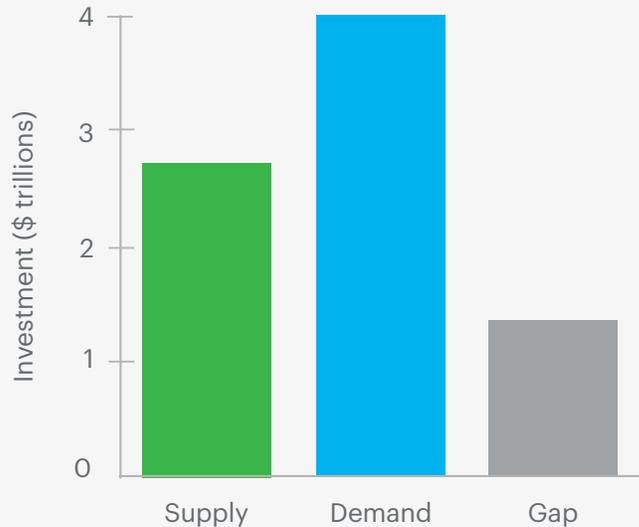
Transportation development is vulnerable to socio-economic instability and election cycles. Changing priorities may shift or halt ongoing projects. New policies, such as rising protectionism in the US and Brexit, will likely alter international trading routes.



Political factors

Public-private partnerships

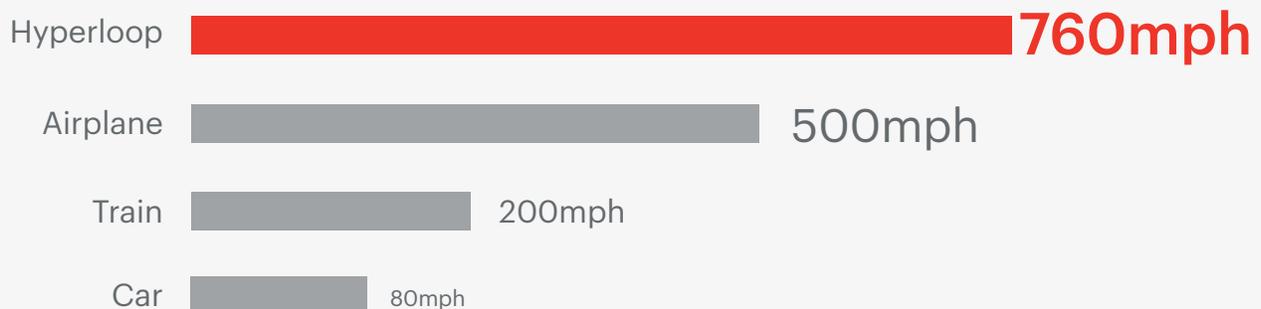
With an infrastructure supply and demand gap between about US\$1 trillion to US\$1.5 trillion per year worldwide, more governments are resorting to funding from the private sector and forming public-private partnerships (PPPs). However, the PPP model is not well known or understood outside the North Atlantic. There is a significant opportunity to expand and establish the PPP model in South America and Africa.



Gap between infrastructure supply and demand
Sources: HIS; OECD; IEA; Economist IU; BCG analysis

Technological innovations

High-tech developments, such as hyperloop vacuum tube transportation and high-speed rail, have the potential to transform the commuter experience. Currently, 17,000 km of rail are under construction. The Hyperloop was first introduced as an open-source design in 2013 by Elon Musk, the founder of Tesla and SpaceX.



Hyperloop speeds
Source: HTT

Climate change

While transportation accounts for 14 percent of greenhouse gas emissions, a two-pronged shift towards renewable power and mass transit can significantly reduce this contribution.

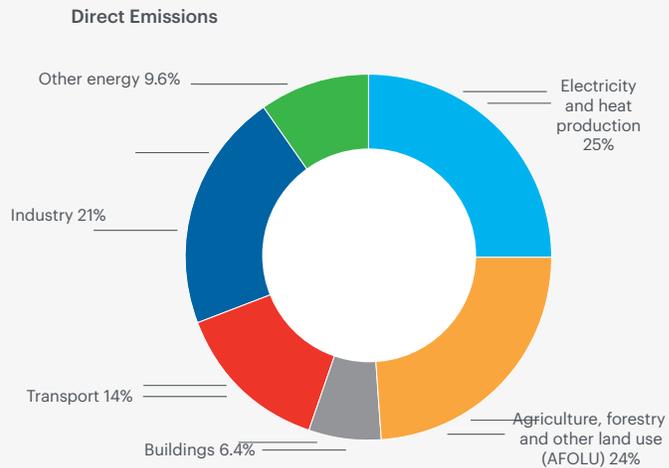
Cost of Carbon

- Political instability
- Floods and mudslides
- Wild fires
- Drought
- Ocean acidification

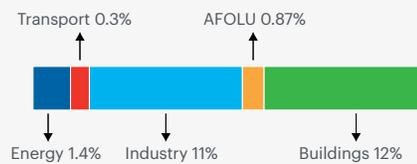
- Infrastructure loss
- Climate refugees
- Species extinction
- Famine
- Water scarcity

- Ecosystem loss
- Infectious disease
- Sea level rise

Largest sources of GHG



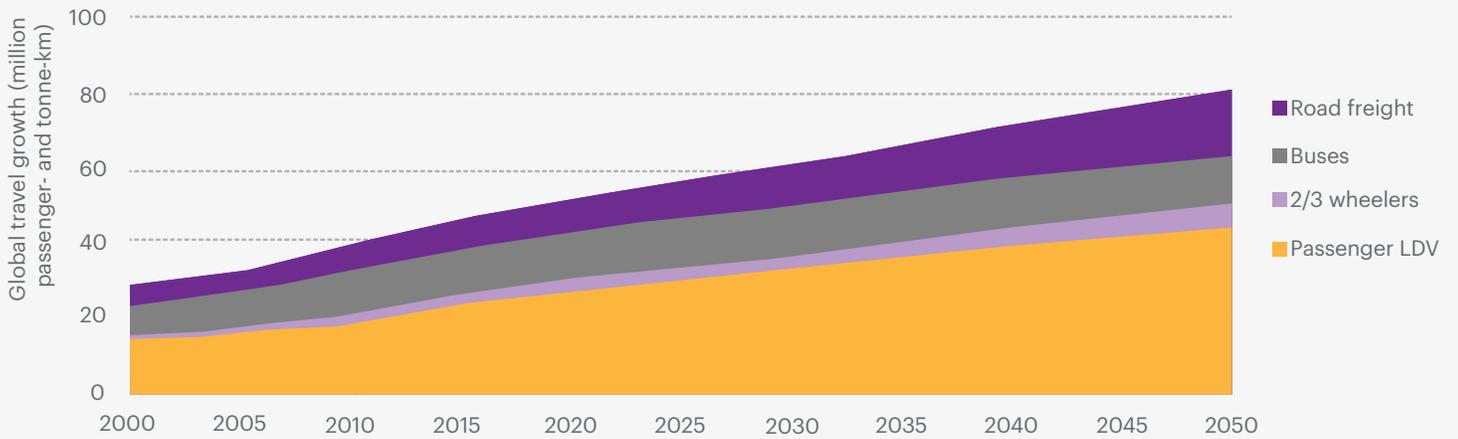
Indirect emissions - E&H production



Cost of global emissions (IPCC 2014)

Roads and railways

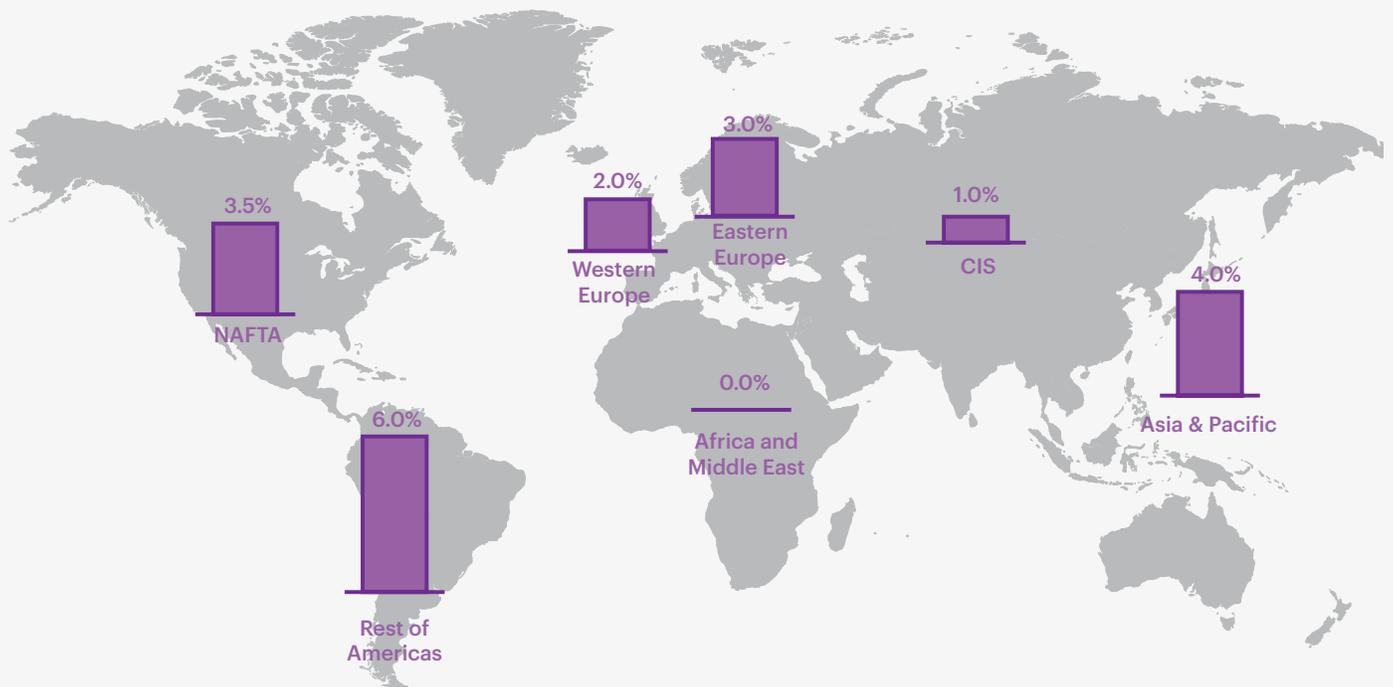
While various regions differ in emphasis on transportation modes, roads and railways are the top recipients of global infrastructure spending.



Expected global travel growth for roads under 4DS. Source: IEA data and analysis

Improvement of rail infrastructure

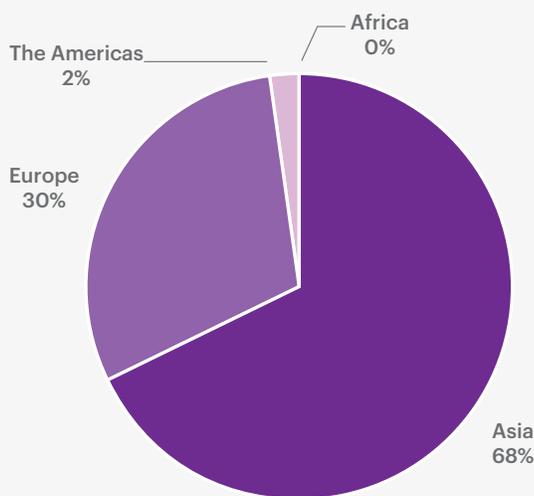
It is estimated that in the next 20 years, US\$1.3 trillion will be required to satisfy the need for rail infrastructure development. It is also estimated that governments will only be able to fund half the capital requirements for that infrastructure development. The gap in funding creates a wide range of opportunities for private investors looking to invest their capital.



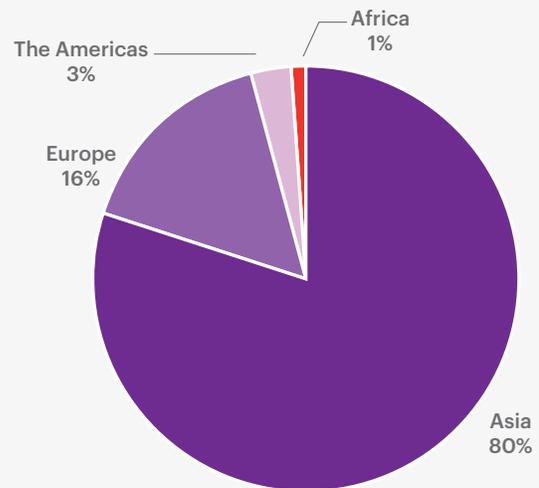
World map with rail market supply annual variation 2017 to 2019
Source: Data from UNIFE

Growth of high-speed rail

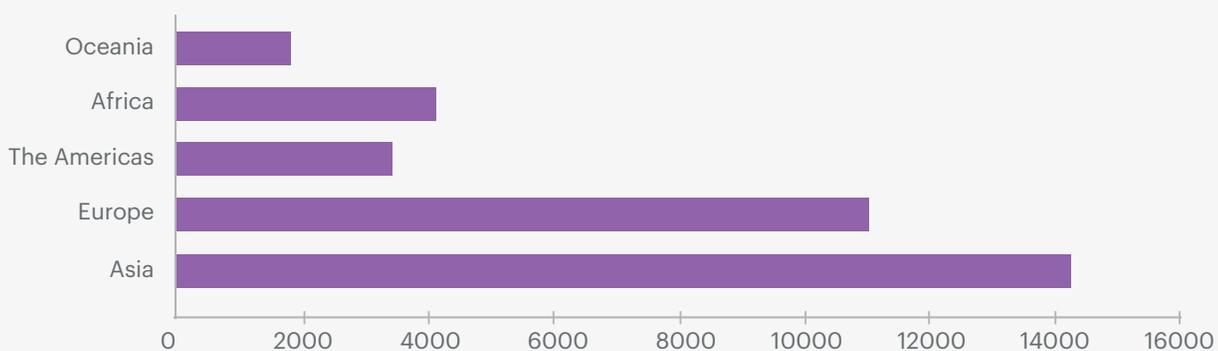
For the last decades, high-speed connections between cities and commercial centers have received major attention from governments worldwide. More than 35,000 km of high-speed lines are being used presently, with the majority located in Asia, followed by Europe and the Americas. More than 17,000 km of high-speed rail projects are currently under construction. High-speed rail has transformed, and will continue to transform, the commuter experience.



High-speed rail distribution globally
Source: Data from GoEuro



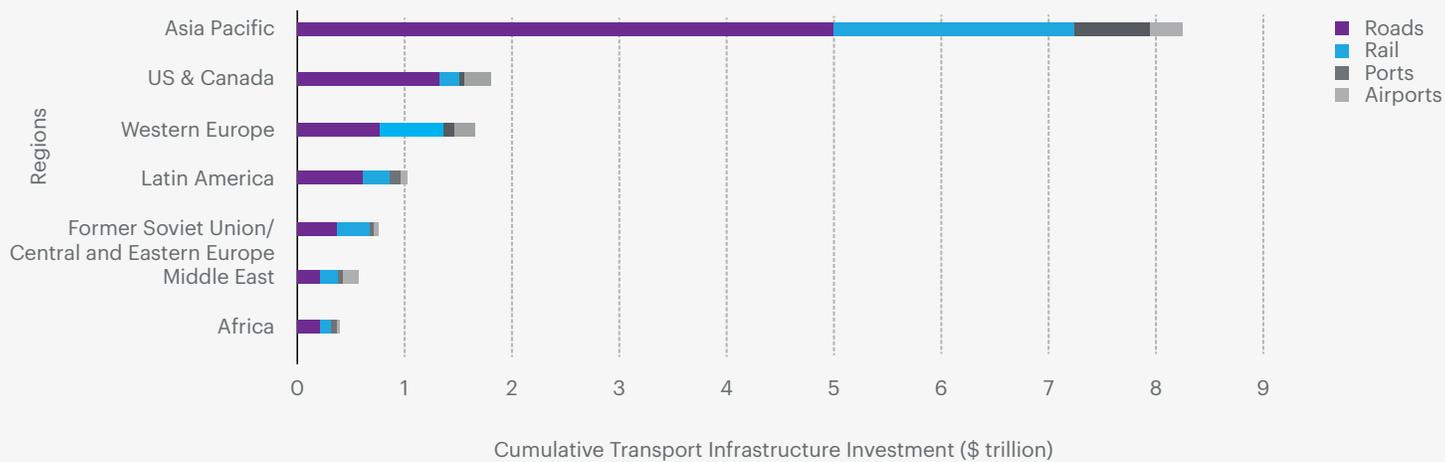
High-speed rail under construction globally.
Source: Data from GoEuro



High-speed infrastructure being planned globally, in km
Source: Data from GoEuro

Pacific Rim

The Asia Pacific region dominates global transportation development. Led by strong population growth, it is expected to account for 65 percent of world spending in 2025.



Cumulative transport infrastructure investment to 2025