

Efficiency

Why Efficiency Matters for Sustainable Mobility

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Efficiency is one of the four global goals framing sustainable mobility in the [Global Mobility Report \(GMR\)](#). The GMR posits that efficiency is crucial to ensure that transport demand is met effectively at the least possible cost.

Because efficiency cuts across multiple aspects of mobility, the GMR arbitrarily defines the scope of the efficiency goal from a macro-economic perspective. Putting in place a transport system that is efficient would mean achieving, among other things: (i) seamless integration across transport modes; (ii) optimal traffic volumes that reduce congestion and delays at borders; and (iii) minimal use of energy for moving people and goods. This would be done at the macroeconomic level—including sub-country, country, region, and world—with all actors optimizing resources such as space and energy, adopting adequate technologies, and making use of regulations and institutional capacity.

Given that demand for the transport of goods worldwide is projected to triple between 2015 and 2050¹, the GMR claims that transport infrastructure and services will have an ever-greater role to play in meeting additional demand. Therefore, addressing inefficiencies must be a priority across the entire system of interconnected roads, railroads, ports, and airports, in any given area.



Transport system efficiency on the global agenda

Transport system efficiency has been included directly or indirectly in several global and regional agendas. While there is no specific Sustainable Development Goal for transport or mobility, nor any transport system efficiency targets in the 2030 Development Agenda, specific efficiency targets are included in the goals for energy, infrastructure, consumption and production.

Transport system efficiency is also at the heart of several United Nations transport conventions and agreements. Among them, the infrastructure agreements regarding regional networks of roads or railways pro-

vide a basis for an efficient development of coherent international networks; thus, they facilitate the international transit of people and goods. The border crossing facilitation conventions help to establish simplified procedures that result in more efficient movement of goods through borders.

The Vienna Programme of Action for Landlocked Developing Countries for Decade 2014–2024 is another global commitment that prioritizes transport system efficiency to unlock development opportunities for landlocked countries. Among other things, the Programme focuses on achieving the efficient connectivity of landlocked developing countries to global markets and value chains.

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¹ ITF (2017), ITF Transport Outlook 2017, OECD Publishing, Paris.

How to measure efficiency of the transport system

We need to measure aspects such as multimodality, institutional barriers to border crossings, logistics performance, and the efficient use of resources, to understand whether the efficiency of a transport system improves over time. The GMR proposed several indicators to measure those aspects:

- **Connectivity index.** This index captures the cost, time, and reliability of transport networks for domestic, regional, and global connectivity, and considers the importance of multimodality. A liner shipping connectivity or air connectivity index can support the connectivity index. Other indicators that need to be developed include freight connectivity. A proxy indicator for network connectivity could be accession to the United Nations infrastructure agreements.
- **Institutional and Regulatory Barriers.** To measure the facility of border crossing and logistics performance, the report proposes indicators such as accession to the United Nations border crossing facilitation conventions and the logistics performance index.
- **Energy Consumption.** For resource efficiency, the report proposes an indicator on the amount of energy consumed for transport per unit of GDP.
- **Technology Use of Transport.** As technology plays a more and more important role in increasing the efficiency of the transport system, the report proposes a measure of the use of electronic platforms for facilitating goods transit and for reducing backhauls.

Recent trends in transport system efficiency

Poor regulatory performance, lack of harmonized regulations, and complicated procedures at borders directly impact the rate at which goods can be transported between countries. These inefficiencies, along with deficient network connectivity, result in delays in the transport of traded goods both within and across countries, particularly in developing countries. And data show that low- and middle-income countries have lower costs in general when they trade goods with high-income countries—which have more efficient trade regimes—rather than among themselves.^{2,3}

Today, transport system efficiency varies widely around the world, according to the average logistic performance index. Developed countries with strong and harmonized transport regulations—which are open to competition, take the lead in technology development, and are parties

to a number of the United Nations transport agreements and conventions— have transport systems that support trade and economic growth.

Developed countries embrace technology and computerization for transport and mobility more easily, using passenger information systems, integrated electronic ticketing systems, real-traffic management centres, vehicles with automated control systems, and freight transport technologies.

Conversely, developing countries—often with weak and incomplete regulations, and little cross-border coordination or cooperation—lag behind. And the gap between countries has been widening in recent years, with the difference in logistical efficiency translating into differing costs for transport, and hindering trade integration by developing countries.

Developing countries are now improving the fuel economy of vehicles at a higher rate than developed countries. But because this rate has only recently surpassed the improvement rate of developed countries, it will take developing countries a few more years to reach similar average absolute levels of vehicle fuel economy.

Developing countries also consume less energy in transport relative to their GDPs. However, this probably stems from differences in economic development, trade openness, and mobility patterns. As their economies develop, this energy consumption could increase.

The scale of the challenge

Because the demand for transport will increase significantly in coming years, it will be important, particularly for developing countries, to improve the efficiency of their transport systems at every level—from sub-national to global.

To improve, countries should have an appropriate tracking framework at hand that will allow them to understand which transport policies they need to introduce or improve, and to evaluate whether these policies bring the anticipated results. The GMR offers such framework.

It will be also more important than ever that countries accede to and implement—if they have not already done so—the United Nations transport conventions and other global and regional transport and trade agreements, and to put in place the norms and standards for effective international transit and trade facilitation systems.

² UNCTAD (2015), Freight Rates and Maritime Transport Costs

³ World Bank (2013), Developing Countries Face Higher Trade Costs

Connections is a series of knowledge notes from the World Bank Group's Transport & Information and Communication Technology (ICT) Global Practice. Covering projects, experiences, and front-line developments, the series is produced by Nancy Vandycke and Shokraneh Minovi.

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The **GLOBAL MOBILITY REPORT 2017** is available at <http://www.sum4all.org/publications/global-mobility-report-2017>