Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

THE GLOBAL GOALS
For Sustainable Development

Mobile communication technology enables "anywhere, anytime, for anyone and anything" map services
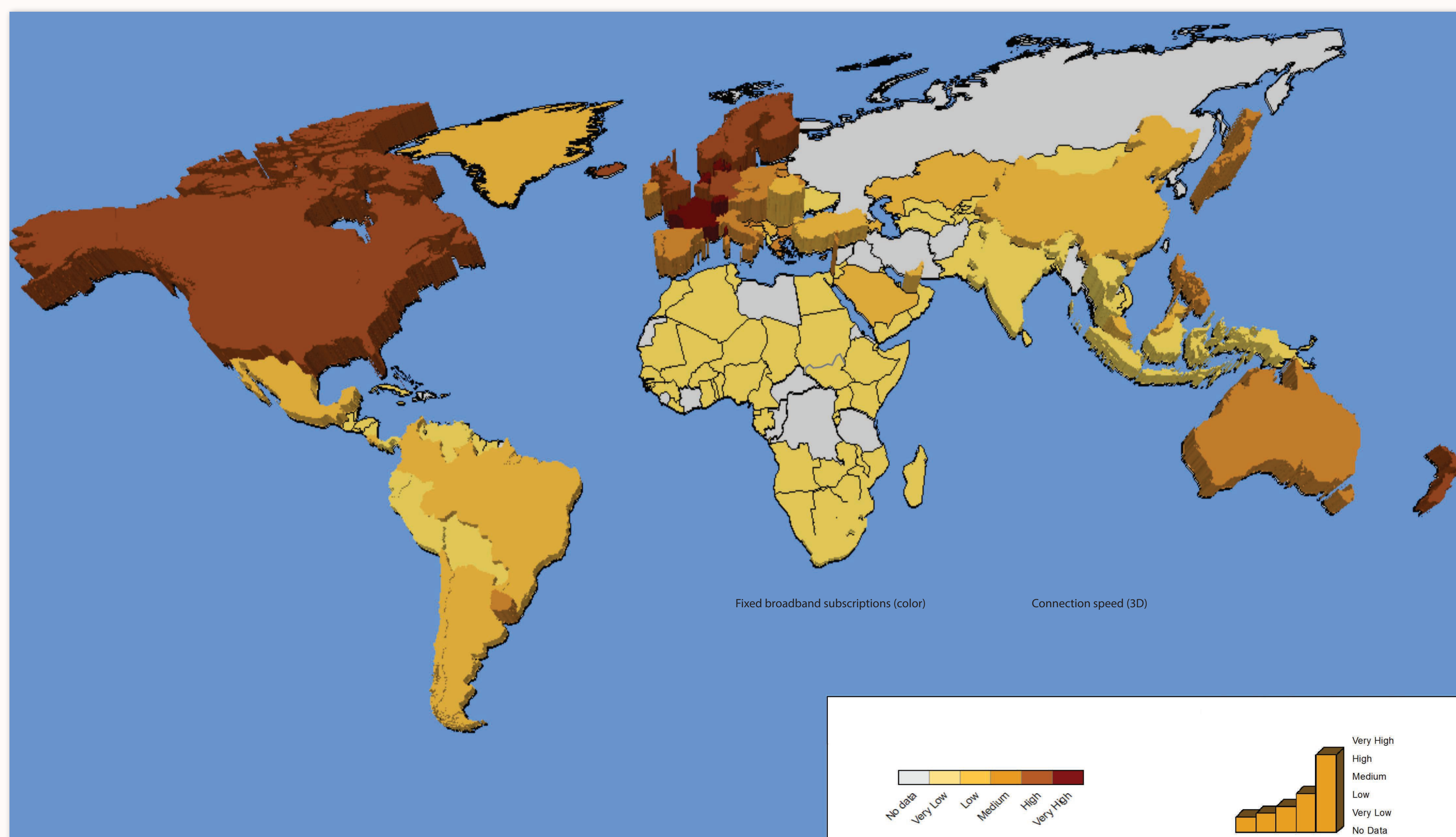
Target
Significantly increase access to information and communications technology and strive to provide universal and affordable access to the internet in least developed countries by 2020.

Indicator
Fixed broadband quality measured by mean download speed. Subscription fixed broadband internet (per 100 people).

Fixed broadband subscriptions (color)   Connection speed (3D)

Very High
High
Medium
Low
Very Low
No Data

No data | Very Low | Low | Medium | High | Very High

Visualization of broadband & subscriptions

3D Extrusion - representing the fixed broadband quality measure by the mean download speed. This variable is visualized via a 3D extrusion in the map. The higher the extrusion, the faster is broadband connection speed.

Color - The numbers of subscription for fixed broadband internet (per 100 people) is visualized by color in the map. Darker color represents a higher number of subscriptions.

The map shows relations of subscriptions and download speed in different countries. In France for example there seems to be a high number of subscriptions for fixed broadband internet. The download speed seems slightly lower than in some neighboring countries.

Mobile broadband

With mobile broadband users can access maps on their mobile device. As many devices have build-in Global Navigation Satellite System (GNSS) receivers, it is possible to display the current position of the user. A mobile broadband connection enables the user to utilize Location-Based Services (LBS), for example for navigation or local information, entertainment, or social networking.

Mobile broadband enables public to access (spatial) information anywhere and anytime. This trend together with the development of information and communications technology (ICT) foster many innovative applications, such as smart cities, intelligent transportation services and urban planning. These innovative applications play a key role in developing a sustainable future.
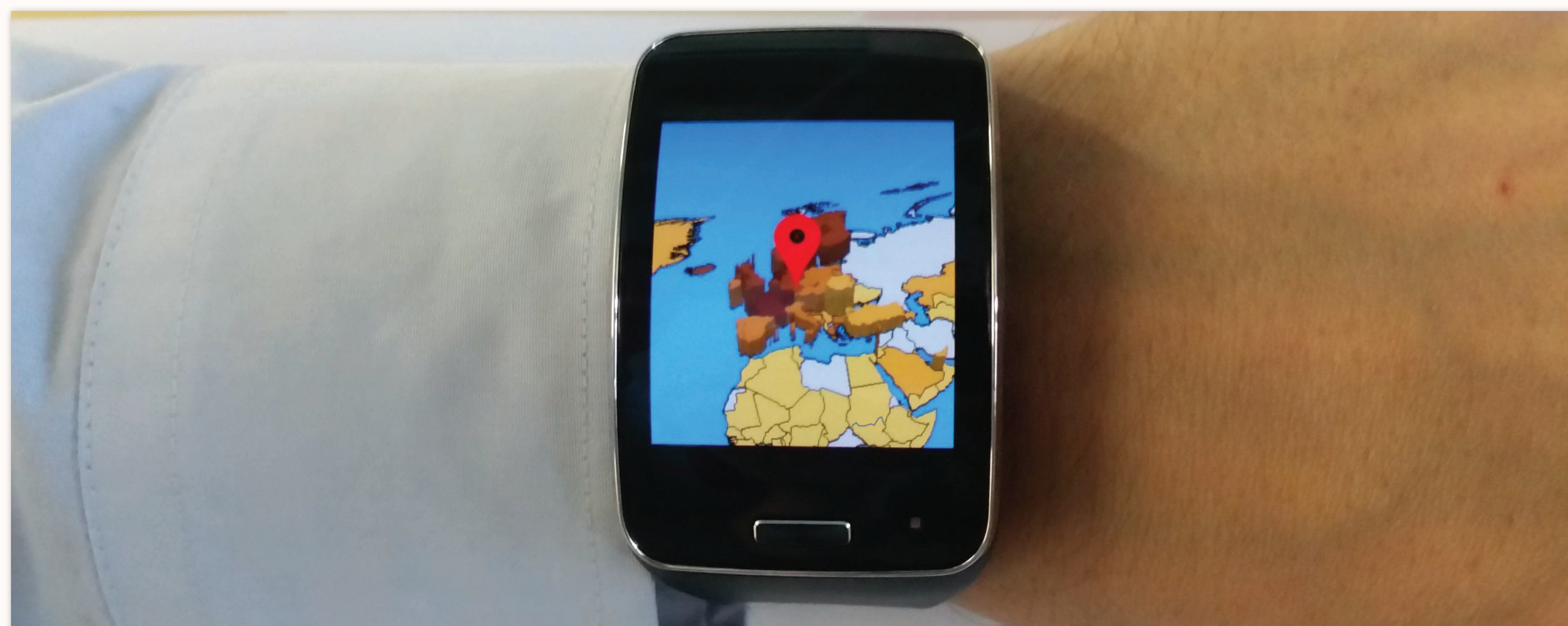
New devices

All countries have increasing access to the internet, mobile & fixed. Emerging mobile devices (e.g., smart watches and digital glasses) are increasingly considered for visualizing maps. It is expected to have an increasing diversity of technical systems (including data formats) and an increasing diversity of devices.

Concerning the cartographic presentation of content we may see different "specialized platform specific systems" vs "more universal or web-based systems", as the different media can handle content and interactivity in various ways. For example the map has to scale according to the size of the display in a smart watch.

The main goal of the ICA **Commission on Location Based Services (LBS)** is to advance the research on LBS in all its interdisciplinary fields, with the aims to enable "anywhere, anytime, for anyone and anything" 4A services.

Boundaries on maps may seem definitive, but there are often different perspectives on their status and position. This poster series is compiled from many sources by cartographers from different countries. The ICA tries to be neutral in such matters and boundaries shown reflect those found on the ground, in existing maps, or recognized by the United Nations. The ICA acknowledges that there may be different opinions and interpretations.

WE ♥ MAPS
INTERNATIONAL MAP YEAR 2015–2016

International Cartographic Association
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