ICT for sustainable and resilient transport in the context of pandemic periods

Travel behaviour has been intensely affected by the COVID-19 pandemic due to government restrictions. While these restrictions resulted in a negative impact on all modes of transport, the impact of these restrictions was not felt equally in society. Data from CISMOB regions show that people with low economic status continued travelling to a larger extent than more affluent citizens.

ICT can play a key role in providing more resilient accessibility solutions for citizens. In short, investments in data standardisation, data quality assurance for better supply planning, and providing the technological resources to improve demand planning and payment for mobility services are vital keys to the gears that can lead to a virtuous circle of efficient and sustainable transport systems.

Key messages

- Citizens **were unequally affected** by restrictions on mobility in the context of the **COVID 19 pandemic**.
- Mobility data from both communication operators and public transport operators is essential to **understand mobility patterns** and **adjust the supply to citizens' needs.**
- **More transparency is needed** on how data is collected, and clear guidance and regulations should be provided on how new sources of mobility data can be used for more efficient urban planning.
- **Smart planning and payment systems are vital** to improving the flexibility, capacity, security, and attractiveness of low-carbon transport solutions.

Based on the conclusions of the exchange of experience and interregional events of CISMOB, the following table summarises some approaches based on ICT used to characterise mobility data in CISMOB regions and to overcome some challenges caused by the pandemic.

	Characteristics / Advantages	Challenges and Barriers
Cell Phone Data	Platforms such (Google, Apple, Tomtom) provide insights into what changed in response to policies aimed at combating COVID-19. The reports charted movement trends over time by geography, across different categories of places such as retail and recreation, **transit stations**, workplaces, and residential or **traffic volumes**.	Despite the large availability of data and high potential for supporting urban and transport planning some uncertainty persists about the data consistency. There is still some lack of clarity and guidelines on the best ways to use these data to implement transport planning and policies adapted to new demand patterns.
Open Data Public transport	Public transport data such as number of passengers and ticket validation by station allow **regions to correlate geographic and socio economic data with travel patterns** (e.g Gender, Housing type, Education level, Income level, Zone population density, nationality, Employment level) . These data can allow urban and transport planners **to better design sustainable urban and transport policies** in future.	Challenges remain in most regions about the **accessibility of data** and its granularity. Other challenges have to do with more technical reasons such as check out location data of the public transport. The main challenge for future similar events (pandemic contexts) is how to use this data and improve the supply, **quality of service and safety to the people who are actually dependent** on public transportation.
Integrating ticketing systems	The **integration of ticketing and** new forms of **contactless payment** (e.g. with visa cards) are useful mechanisms for supporting seamless multimodal mobility enhance rider experience. On the other hand, booking and **purchasing tickets in advance** via digital media may speed up the access to public transport. **New check in/be-out technology** can allow passenger to enter a train or a bus with **beacons detecting** their ticket. When a beacon onboard detects a smartphone the mobile app may send information back to confirm the trip.	Smart ticketing has been one of the most advanced areas in recent years. Some of the main difficulties remain, above all, in **the initial investment** of operators, in the **coordination between the various players** in the region regarding the management and sharing of revenues and costs, and regarding the articulation with fare systems and technology of geographically neighbouring regions.
MaaS	MaaS (mobility-as-a-service) refers to digital systems that offer a mobile app that enable the planning, booking, payment, and subscription of different multimodal mobility services. MaaS usually use **artificial intelligence** (AI) to make the system more user centric and smart. AI allow transport providers and transport authorities and agencies to provide real time information such as **how many are on board**. By charge tickets on demand for specific routes, agencies can also adjust to **lay on more vehicles as needed to ensure distancing rules are met**. Integrated MaaS apps may support not only hailing rides, but also for providing **contactless ticketing and mobility planning — with health and safety features.**	Despite this very promising concept, there still needs to be more clear evidence of the role of **MaaS for a more sustainable mobility**. Recent analysis shows that there is still much room for improvement in the role that MaaS brokers can play in facilitating the choice of more sustainable options. **The communication between the various stakeholde**rs, conflicts between private sector profit goals and societal goals, and identification of viable business models have been major obstacles in several regions.