

EVIDENCE BRIEF

The **Social Sciences and Humanities Research Council** in collaboration with the **Future Skills Centre**

SSHRC's Imagining Canada's Future initiative mobilizes social sciences and humanities research to address emerging economic, societal and knowledge needs for Canada, and help guide decision-making across all sectors toward a better future. This evidence brief addresses the Future Challenge Area of: **Mobility and public transit**

Smart mobility hubs: Current scholarly knowledge and case studies

About the project

The transportation sector has undergone unprecedented changes over the past two decades, motivated by increased public awareness of the negative impacts of single-occupancy driving and growing support for sharing economy and sustainable development principles.

The very definition of mobility has changed dramatically, with a multitude of new ideas emerging, such as transportation “cocktails,” intermodal transportation, multimodal transportation, shared mobility, on-demand transit and even Mobility-as-a-Service. Smart mobility hubs, which connect users to different transportation services physically and/or

virtually in one location, appear to be one of the essential conditions for these new ideas to be implemented.

This study intends to define smart mobility hubs and present criteria, a classification method, goals and performance indicators, and the conditions that enable their implementation.

This research report is based on a scoping literature review. Optimized keyword strings were developed and resulted in the compilation of 2,715 documents, 89 of which were retained for the present review. Three case studies were also conducted.

Key findings

Even though smart mobility hubs are considered essential structures for multimodal transportation, they are still poorly defined and rarely studied. The definition of a smart mobility hub, its classification criteria and the conditions that enable its implementation vary widely from one author to the next. Often, qualitative criteria are used to describe them, resulting in subjective analyses.

Based on the scientific literature, a smart hub can be defined as a physical or virtual space that connects at least two modes of public transportation—shared or active—and is designed (e.g., in terms of its governance, physical accessibility, transfer times, information for users, payment methods, urban development, architecture, nearby shops and services) to improve user trip efficiency, safety and enjoyment. More broadly, it is designed to support community goals, particularly sustainable mobility and universal accessibility.

For physical infrastructure (e.g., bus and train stations, terminals), the conditions that facilitate smart hub implementation can be grouped into several categories: safe, easy access; high-quality services inside and outside the hub; cleanliness and

aesthetic appeal of the space; clear, consistent information provided to users; coordinated transit options that vary in range and type; cooperation among regional actors; and defined goals, targets and performance indicators.

Much like physical infrastructure, mobile apps can also be considered mobility hubs in that they allow users to efficiently link different transit options. However, governance appears to affect which modes of transportation can be accessed via mobile app: the more regional actors there are, the less fully integrated the transit services are. This is particularly true when multiple public and private actors are involved, which also poses a problem for fare integration. As a result, having a large number of operators hinders service integration.

The case studies show that intermodal goals and strategies rarely focus on smart mobility hubs, even though these hubs are often part of vast urban renewal plans or sustainable mobility policies. While some theoretical literature exists on the topic, we did not find any reports of performance indicators being used in practice. Nor did we find any mention of how virtual hubs work in tandem with physical hubs.

Policy implications

The case studies presented in this knowledge synthesis serve as a starting point for reflection and improvement by governments at all levels, operators and, more generally, hub managers who wish to modernize their infrastructure, undertake an urban renewal project or add to their sustainable mobility

policies. Hub managers should seek to develop data sets for researchers to produce more knowledge, applications and performance indicators that will benefit transit users.

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FURTHER INFORMATION

▶ [Read the full report \(in French only\)](#)

The views expressed in this evidence brief are those of the authors and not those of SSHRC, the Future Skills Centre or the Government of Canada

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The Future Skills Centre (FSC) is a forward-thinking centre for research and collaboration, dedicated to preparing Canadians for employment success. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead.
