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Factsheet

Integrated Fare-System

Wuppertal Institut

UN HABITAT
FOR A BETTER URBAN FUTURE

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Solutions project

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Urban Electric Mobility Initiative (UEMI) was initiated by UN-Habitat and the SOLUTIONS project and launched at the UN Climate Summit in September 2014 in New York.
UEMI aims to help phasing out conventionally fueled vehicles and increase the share of electric vehicles (2-,3- and 4-wheelers) in the total volume of individual motorized transport in cities to at least 30% by 2030. The UEMI is an active partnership that aims to track international action in the area of electric mobility and initiates local actions. The UEMI delivers tools and guidelines, generates synergies between e-mobility programmes and supports local implementation actions in Africa, Asia, Europe and Latin America.

Solutions

SOLUTIONS aims to support the exchange on innovative and green urban mobility solutions between cities from Europe, Africa, Asia and Latin America. The network builds on the SOLUTIONS project and brings together a wealth of experience and technical knowledge from international organisations, consultants, cities, and experts involved in transport issues and solutions.

The overall objective is to make a substantial contribution to the uptake of innovative and green urban mobility solutions across the world by facilitating dialogue and exchange, promoting successful policy, providing guidance and tailored advice to city officials, fostering future cooperation on research, development and innovation.

Aims

SOLUTIONS_UEMI supports urban mobility implementation actions that contribute to the Paris Agreement and the New Urban Agenda.
Sustainable energy and mobility can make positive contributions to a number of policy objectives, nationally and locally. In particular in cities there is a great potential to create synergies between for example safety, air quality, productivity, access and climate change mitigation. A UEMI resource centre will provide opportunities for direct collaboration on projects focusing on sustainable urban mobility and the role e-mobility can play in it. The UEMI will pool expertise, facilitate exchange and initiate implementation oriented actions.
UN-Habitat, the Wuppertal Institute & Climate Action Implementation Facility jointly host the resource centre for the Urban Electric Mobility Initiative, aiming to bridge the gap between urban energy and transport and boosting sustainable transport and urban e-mobility.

In brief
In many cities, especially large urban agglomerations, public transport is not provided by a single, unified government agency. Instead, passengers have to rely on several companies who provide services by often poorly integrated transport modes (such as rail, bus or taxi). These modes frequently have different schedules, route patterns, and fare systems. Integrated Fare Systems (IFS) are an attempt to create a single fare structure for all city public transport, allowing passengers to transfer seamlessly from one mode to another. This increases the efficiency and attractiveness of all city public transport.

Examples
The advent of the smartcard, an electronic payment card stored with a certain amount of money and can pay fares on all transport options across a city, has been central to the rise of IFS. Generally, information is stored on either a magnetic stripe or a computer chip, as is the case with Hong Kong's Octopus card. Introduced in 1997, the Octopus card allows for contactless payment across the city's many modes of transport, which include rail, bus, and ferry. Users can also make shopping purchases with the Octopus card.
The Octopus card was the model for the Oyster card, which serves a similar function in London (UK).

Contactless payments and the ability to recharge an Oyster card from a cell phone or bank account, helps to eliminate waiting times at station kiosks. Additionally, because the Oyster card can store personal information and travel data, it uses a price-capping feature that calculates and deducts the lowest possible fare based on how far and long a customer travels. Finally, the Oyster card allows London to control the distribution of revenue between transport operators.

Results
Transport systems that have switched their methods of collecting fares over to IFS have generally seen a marked increase in traveler satisfaction. According to the operators of Hong Kong's Octopus card, there are almost three cards in circulation for every person, and 95% of residents between 16 and 65 have a card. Some 12 million daily transactions take place. In London, over 85% of all rail and bus travel is paid through Oyster cards, with less than 1% of travelers paying in cash.

Other cities that emulate Hong Kong and London's smartcard technologies in some form include Amster-

In brief

Examples

Results

dam (Netherlands), Paris (France), Singapore, and Sydney (Australia). In Switzerland, IFS are used on the national intercity railway system.

Technical and financial considerations

The capital costs of overhauling an entire fare collection system and replacing it with a unified digital method of payment are considerable. In London, the city only decided to replace manual payment with Oyster cards after huge increases in the metro ridership throughout the 1990s. As lines at fare collection gates got worse and it became clear the ridership increases would be permanent, Transport for London (TfL) made the decision to invest in smartcard technology.

However, uniting disparate transport operators under a single fare payment system can be politically difficult. In Hong Kong, the city's five major public transport operators agreed to cooperate in the rollout process for the Octopus card, and the card can now be used citywide. In Sydney, however, the process was more difficult as the New South Wales State Government and a transport contractor could not agree on the proper way to overhaul the city's complex fare system. As a result, millions of dollars and several years were lost to delay, and the Opal card only began its rollout process in 2015. In a place like Mexico City, where hundreds of private concessionaires operate transit routes, similar conflicts would be likely.

Policy/Legislation

Developing and introducing IFS is largely the prerogative of individual transport agencies, which can begin the process of integrating fares and developing smartcards by allocating money for those purposes. However, because many transport systems in large cities are divided among multiple small operators that compete with each other for passengers, it can be difficult to convince them to agree to work together on creating a single fare system. In Los Angeles (U.S.), for example, the TAP card is valid on all services run by Metro, the region's largest transit operator, but many smaller transport operators in the region have elected not to join the system, preferring to avoid sharing revenue on a regional basis. Whether or not small agencies can be compelled to join an integrated system depends on the local laws.

Institutions

IFS are usually managed through a smartcard or magnetic- strip card technology, and in both London and Hong Kong, the work of collecting fares is contracted

Technical and financial considerations

Policy/Legislation

Institutions

out to a private operator. Several private companies form a consortium to supply fare cards and operate the system, and these consortium's receive a license from the municipal transport agency (TfL, for example). In certain cases, these contracts can be voided, as TfL decided to do in 2008 following a number of technical failures with the Oyster card's original contractor. In other cities, where multiple private (or semi-public) operators operate transport services, all the agencies and other major stakeholders must agree to share passenger information and travel data with the technology companies licensed to manage the card system.

Transferability

Transferability
IFS already exist on multiple continents. More than any single particular piece of technology, the success of IFS depends on whether the local transport culture is such that multiple agencies can agree on fares and operations. The "cooperation within competition" slogan used by Hong Kong's five transit operators might not work in the New York City area, where different agencies operate non- compatible systems because of state boundaries, or in many Latin American cities, where hundreds of private operators provide a majority of transport, operate many of the same routes, and only take payment in cash.

Even in a city of the latter type, however, the technology to create integrated systems exists. Mexico City's formal transport system consists of a metro, Bus Rapid Transit network, and light rail line, all of which travelers can pay for using a single smartcard.

Case Study: London´s Oyster Card (UK)

CASE STUDY: LONDON'S OYSTER CARD (UK)

Context
London's transport system is one of the largest in Europe, and includes the metro, bus lines, regional/suburban rail, and several light-rail lines. TfL, a public agency run by the Mayor of London, manages the entire system and carries approximately 6 million commuters daily, about half of whom ride the metro. After a prolonged ridership surge in the 1990s, TfL introduced smartcard technology in order to reduce waiting times at fare gates and ease the payment process.

In action
TfL introduced the Oyster card in 2003, and over the years made several improvements to improve the system and save riders money. In 2005, London introduced "price capping" where travelers would pay

no more than the price of a one-day fare card, no matter how many trips they took or how long their journey was. TfL designed fares to provide riders with an incentive to use the Oyster card instead of cash fares, with discounts of up to 33% on all transport modes. Oyster cards have also been expanded to London's massive bus system, and as of 2014, city buses no longer accept cash.

In recent years, TfL updated its card-reading machines to allow customers to top up their Oyster cards with contactless credit card payments. Passengers can make payments of up to £20 by swiping their credit card in front of the Oyster card reader, with no need to enter a PIN code. The Oyster card has also changed the way TfL has been able to manage its fare revenues, which makes up 40% of all operating costs. By placing all transport modes under a single unified system, TfL has been able to control revenue distribution between operators, prevent losses from fare evasion, and better account for income. Finally, the Oyster card allows TfL to obtain data on passenger behaviour and journeys, allowing for more efficient planning.

Results

Since the launch of the Oyster card, TfL has issued around 60 million cards, and an estimated 85 percent of all rail and bus travel in London is paid for with the card. (The number of riders who pay their fare in cash has dropped to about 1 percent.) By eliminating the need to purchase tickets at stations, the Oyster card has reduced waiting times at transport stations throughout the city. According to TfL, the card allows busy stations like Liverpool Street to increase their input capacity from 15 customers per gate per minute to 25 customers. Eliminating paper tickets has also reduced fraud and fare evasion, saving the agency £40 million per year.

While customer satisfaction with Oyster cards is generally high, some passengers have raised concerns about sensitive travel and financial data. Non-governmental watchdogs report that contactless payments are a risky technology.

Finally, the cost of selling Oyster cards and maintaining a comprehensive, integrated ticketing system has decreased over the years. The cost of sales has dropped 4 percentage points since the introduction of the Oyster card. As contactless payment becomes more popular and the card becomes the default method of payment for all London transport modes, administrators believe they will be able to rely more heavily on customer self-service machines, online account management, and mobile payment.

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More Information

Implementing Partners

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