Urban transport is a useless service – this is how we can solve the problems!
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Users of urban transport have a right to an answer to the question 'When will I arrive?' Late or cancelled services, congestion and a lack of parking spaces cause delays, usually without warning. It is high time we improved service quality. New ideas and a reform of urban transport can make this possible. All forms of urban transport can be regarded as services, and coordinated within an information and payment system, which would pave the way for a number of radical changes.

How the system might work
Before starting a journey or other form of conveyance, a *travel planner* describes how a given journey can be made: transport type; route; comfort (acceptable degree of crowding, seating requirements); car-sharing availability; booked parking; hire car or cycle for any continued travel; and price, including how this varies according to departure time. Other alternatives might include how to reduce or even avoid the journey, for instance by suggesting a similar, alternative destination or a video conference to replace the trip. A choice is made and the journey is paid for. This creates a contract between provider and consumer.

Throughout the journey *navigation support* is available, which extends to public transport, cyclists, pedestrians and those connecting between different modes of transport. In the case of an accident or other unforeseen event, travellers will be advised how to change route and/or mode of transport, as far as possible without causing chaos along alternative routes. In addition, urban-transport providers, whether public-transport companies or highways agencies, can quickly deploy extra resources to fulfil their obligations, if possible. Consumers will be able to adjust their purchase during the journey if they change their travel plans.

When the traveller reaches the destination, the contract is compared with the journey itself. This information, stored by service provider and consumer alike, is used to continually improve contracts and forecasts for future travel and transport. In the case of significant discrepancies between contract and service, the traveller is compensated automatically.

New principles for creating accessibility
Over past millennia, closeness created urban accessibility. The First Industrial Revolution made little change here. The steam engine revolutionized long-

[1] This is a slightly reversed translation of an article in Swedish: Stadstrafiken är en usel tjänst – så löser vi problemen! In Stockholm on the Move, exhibition catalogue Färgfabriken, Stockholm November 2012.

distance transport, quickening the pace of urbanization and creating a more closely knit urban environment as a result. Only with the Second Industrial Revolution, which introduced the internal-combustion engine, the electric motor and cheap energy, did cities change from tightly packed urban concentrations to sprawling regions. Today, increased mobility has become the means to create accessibility. Growing hordes of city dwellers travel ever faster and ever further, using ever-more resource-hungry modes of transport, to ever-more widespread destinations. The Third Industrial Revolution, that of the microprocessor, Internet and wireless communications, has yet to impact on urban transport as it has elsewhere. My argument is that information can replace greater physical mobility as the primary means of increasing urban accessibility. This would also radically alter urban transport and the future development of cities too.

How will this be possible?

A number of changes have already laid the foundations for reform. Elsewhere, for example in personal networking; systems for global manufacturing, transportation, stock-keeping and sales; and in systems for global financial transactions, the advances of the information society have already made their breakthrough. Rationalized data in small organizations and systems have retrospectively become part of ever-larger integrated systems. This potential is yet far from fully realized in urban transport. The most important preconditions include the Internet; GPS, to allow prices to vary according to time and space; widespread digital intelligence (smartphones and navigation devices); high-capacity hardware and software (partly self-updating forecasting models); and mobile-phone payment systems. An integrated system can be built by linking and complementing pre-existing systems and functions. These mainly comprise travel planners, navigation devices, congestion charges, distance-based road charges, traffic surveillance systems, coordination and emergency control centres, and traffic forecasts based on continually updated existing data.

Small changes lead to big improvements

Broadly, there is no lack of capacity in urban transport. But the service is produced and consumed partly at the wrong place, at the wrong time, and in the wrong way. For the most part, just small adjustments in travellers' departure times would avoid or mitigate congestion, the cause of huge monetary losses. Once built up, congestion can take hours to dissipate, yet with differentiated pricing it can often be avoided. Even at peak times, when the risk of congestion is greatest, car and lorry traffic both operate with a large overcapacity. In other words, even limited car- and transport-sharing would significantly reduce the risk of congestion. Using information and pricing to utilize the resources already available will, in some cases, also allow large-scale, expensive, mobility-stimulating projects to be postponed or cancelled. It is uncertain whether this

type of costly project has the desired effect of improving accessibility, as an expanded infrastructure is known to lead to increased travel.

A pricing policy based on how the various modes of transport use resources and influence the local and global environment, health, urban sprawl and social injustice, would allow us finally to tackle a number of transport issues that were previously difficult to deal with. One example is that of striking a balance between the modes of transport: walking, cycling, hire vehicles, public transport, and motorized private transport.

Obstacles and how to overcome them

Transport changes, including those that benefit the majority, such as the congestion charge, are met by a strong, well-organized opposition. In 1975 Singapore was the first city to introduce a congestion charge, but nearly 30 years elapsed before successors of any note appeared: London in 2003 and Stockholm in 2006. One stumbling block has been the almost universal absence of a single authority to both propose and implement system change. Many parties with sometimes conflicting interests must agree, or at least be forced to reach an understanding. However, the fact that urban transport is fixed in time and space is an advantage. Every city may be described as a partly isolated niche, where a new system can be introduced without the threat of production being shut down or relocated. Yet specific circumstances or decision-making competence must emerge, such as when Ken Livingstone enabled the congestion charge in London; when the Swedish Green Party held the balance of power at a national and regional level, and at a local level in Stockholm itself, paving the way for the congestion charge there; or when Jaime Lerner in around 1990 introduced what became a world-famous system of fast buses (BRT) in Curitiba in Brazil. Given the roughly 600 cities with a population of one million or more in the world today, it is not impossible that the proposed reform will be tried somewhere, which, by the power of example, will clear the way for a growing number of successors.

Some road users too are strongly opposed to changes in familiar practices. Spreading information has often proved insufficient in altering travel patterns. Yet differentiated pricing allows this to happen, as the congestion charge in London and Stockholm has shown.

Urban transport is, in some respects, not just a service but a civil right. We must safeguard the freedom to roam about town (although private vehicles would need to be GPS registered in some way for variable prices to be charged). Not everyone can, or will want to, join a high-technology system. This means a maximum charge must apply for each service. The project would not need universal uptake at its inception. Perhaps a membership figure of 20–25 per cent

would suffice to produce positive effects, by providing automatic travel reports as the basis for continually improved consumer information, which would in turn encourage others to join.

Without doubt the surveillance society will benefit by the system outlined here. This is an important objection, yet one often raised, it seems, mainly by tacticians opposed to paying charges. We may perhaps be reminded that Big Brother is already watching us, and that the proposed system would provide those under surveillance with great rewards in return.

What are the benefits?
One of the system's main benefits is that travellers and conveyors can obtain reliable information about their journey or delivery and the expected time of arrival. In addition, travel in unfamiliar areas will be possible without orientation problems, regardless of the chosen mode of transport. Service providers can obtain advance information about travel and transport intentions, and can thus to some degree tailor services, and prices too, according to demand. Today the hunt for parking spaces creates many problems. Here, reservations and road directions will reduce traffic volume, journey times and the risk of accidents. It will also be possible to develop a range of new services relating to travel and transport in urban environments. Traffic congestion, the cause of huge annual monetary losses, can be reduced, and transport's negative impact across a range of areas can be counteracted via differentiated pricing. At the same time, large-scale infrastructure projects can be cancelled or postponed. Given the many transport-related uncertainties over the coming half century, it seems prudent not to become dependent on structures that would be rendered useless if abundant, cheap energy were no longer available. Reliable, almost congestion-free urban travel and transport lies within reach, and would also enhance city life with completely new qualities.