

Maximizing the potential of road-user charging

>
accenture

High performance. Delivered.

• Consulting • Technology • Outsourcing



Road-user charging is the most immediately effective response to traffic congestion—but it offers much more besides. Once accepted, it can actually change public attitudes toward road use and encourage more environmentally sustainable transport. Indeed, its long-term potential is huge.

As the core of an integrated, interoperable demand-management system that covers multiple uses, it can help transform municipal, regional and national transport infrastructures and put them on the path to high performance. Success, however, hinges on winning public trust. And that depends on building a precise, granular system that is both easy for customers to use and brings them clear benefits as individuals. Only a holistic approach to road-user charging, customer-driven and with the right balance of technologies, can deliver such a performance-enhancing solution.

Traffic congestion poses enormous threats to the world's transportation networks, the global economy, public health and environmental sustainability. It costs the European Union around €100 billion a year—one percent of GDP¹. In the United States, New York alone loses an estimated US \$13 billion annually in foregone economic growth². Worse still are the costs in terms of pollution, not least in the mushrooming megacities of Asia and Latin America where rates of respiratory illness are soaring. And with the number of cars set to double worldwide by 2030, these threats can only intensify.

Transport authorities are responding by starting to make drivers pay to use roads. Some of these initiatives are simply variations on old-fashioned highway-tolling schemes, which were

largely designed to raise revenues for road maintenance. In and around cities, however, where the combination of economic and environmental threats from traffic congestion is most intense, a more sophisticated response is rapidly catching on: road-user charging.

When successfully implemented, road-user charging, which acts as a disincentive to drivers, can encourage travelers to shift to alternative modes of transport and thus, cut environmental pollution, improve traffic flow and management, and raise funds for investment in better transport infrastructures. Its long-term potential is even greater. Not only can transport authorities use the granular customer information generated by road-user charging to continually improve services—they can actually turn the system into a platform for other forms of customer-driven charging, from electronic ticketing on mass transit to parking and even retail payments.

In most geographies there are, of course, significant public concerns about privacy and civil liberties to overcome before road-user charging can be implemented. The technologies at work are by definition intrusive—but they don't have to be unacceptably so. What's more, a road-user charging system that does manage to gain public trust can leverage drivers' self-interest to achieve much broader economic and environmental goals.

¹Commission on the Intelligent Car Initiative, "Raising Awareness of ICT for Smarter, Safer and Cleaner Vehicles", (2006)

²NYC Economic Development Corporation, "Implementation of the City's Proposed Congestion Pricing Plan" (2007)

Accenture has been involved in several major public transport improvement initiatives that employ aspects of successful road-user charging—the Netherlands' groundbreaking system of electronic fare collection and the transformation of customer relationship management at a national toll road operator among them.

User acceptance has been central to success in all these initiatives and two capabilities in particular have been key to winning public trust:

- **A clear understanding of the individual customer experience**—to deliver a system that is simple, swift, secure and beneficial for all users
- **The right balance of technologies**—integrated and architected on an open platform that can respond to constantly evolving customer needs

London and other big cities have recognized the potential of road-user charging, and more and more transport authorities worldwide are poised to follow their example. All seek essentially the same goal—reduced traffic congestion. All, moreover, must find a combination of enabling technologies that not only work, but that can also overcome public suspicions about privacy, convince users that road-user charging is not just another tax and reassure local businesses in the areas affected that it won't hurt them. Yet all also have subtly different individual requirements—differences that necessitate a precise, focused approach.

Drivers want to see a fair, easy-to-use, transparent and equitable system that works for them—as individuals. That means finding applications that can deliver direct benefits in terms of cost, convenience and service enhancement. Advanced applications may well have the best chance of meeting these expectations in the long run, but they might not yet be completely stable. Proven technologies on the other hand, while they can probably be relied upon to work, could swiftly become obsolete—a major problem if providers hope to deliver on the long-term potential of road-user charging.

Only the right balance and integration of technologies, built on an open platform that enables a wide range of providers to plug in and offer value-added services, can respond to all these needs as they evolve. Only a travel experience tailored to individual needs will convince drivers that road-user charging is equitable. And only a system that provides both capabilities in combination can generate the data to deliver the multiple, value-added services that will retain public support into the future.

Developing such a system may challenge the mindsets of public transport authorities more used to transactional than transformational thinking. But embracing a customer-driven outlook will also yield great benefits.

Traffic congestion hinders economic growth, contaminates the air we breathe, damages the environment and contributes significantly to global warming.

Customer-driven road-user charging

Mounting pressure to grow and cut costs convinced one of the European national toll road operators to move, with Accenture's help, to a more sophisticated electronic tolling system.

Implementation of the new system involved new billing processes and more importantly, a total overhaul of the company's customer relationship management. The upshot: An attempt to increase penetration has delivered just the sort of customer-driven road-user charging that drivers will accept.

Drivers buy on-board units (OBUs) with an individualized reference number that is recognized by a central system, which keeps user records. The units work like a debit card to buy toll access and other services as well including access to parking garages, fuel and, in time, on-street parking. By segmenting clients, the system allows different pricing strategies for different client segments—corporate vs. personal users, for instance.

Eventually, by charging different rates for different times of day and days of the week, the system will also help improve traffic flow on the highways. Meanwhile, its popularity among users in the capital city is especially high as the system manages access to the protected, historic neighborhoods of the city, too.



Automated Payment System

In 2009, the Netherlands will become the first country in the world to introduce a nationwide electronic payment system for all modes of public transport—train, metro, bus, ferry and tram. The Dutch system's success in winning the trust of travelers provides an object lesson for any public transport authority contemplating road-user charging.

The system, parts of which are already operational and which uses contactless smart cards to calculate and deduct fares automatically, involves just the sort of high-volume, low-value transactions at work in road-user

charging. Its technologies, similarly, allow complex, individualized charge calculations cost-effectively because it is automated. It is also built on an open architecture, which is flexible enough to accommodate changing customer and/or provider requirements—a first for any smart card transport network.

Like transport authorities contemplating road-user charging, the Dutch authorities had to persuade people to overcome their qualms and sign up to the new system. But Dutch travelers have accepted smart cards (more than 2 million cards are in use today) because they make traveling faster, easier and safer—nobody can move beyond the gates and travel without one. Dutch public transport operators, meanwhile, can gain valuable information about how

many people are traveling where and when—information they can use to continuously improve their business operations and add value.

Indeed, the international consortium (including Accenture) that won the tender for the Dutch system, owed its success at least in part to the fact that it included the company that has been operating Hong Kong's mass transit system successfully for more than 10 years. In that Asian city, the cards today can also be used in convenience stores, supermarkets, fast-food restaurants and on-street parking meters—just the sort of multiple uses to which road-user charging can also be applied once its primary use has reached critical mass.

Mobility credits to cut environmental pollution in Genoa

The city of Genoa, Italy, is piloting a scheme that takes the idea of road-user charging a stage further. A system of so-called mobility credits—jointly sponsored by Fondazione Italiana Accenture³, the Genoese municipal authorities and other Italian private companies and foundations—enlists user self-interest to promote environmental protection while preserving people's basic freedom to move. This initiative forms part of other innovations in transport management that the city of Genoa has realized in the past and is planning in the future.

The concept, instead of restricting or prohibiting access as most road-user charging systems do, embraces freedom of choice. It awards every citizen an equal number of mobility credits annually, which they can use (or not) to travel freely within the city limits. The rate at which the credits are used up depends for example on the mode of transport chosen or the time of day. Private cars in peak periods obviously consume more credits than at quieter times.

Of course, different users will have different transport needs. So, the system is flexible. It allows say, a pensioner with a surfeit of credits to sell the surplus to users with higher needs—or to exchange the surplus credits for other services. Similarly, those who need more credits can buy them from the municipality.

A recent survey in Genoa revealed support for the proposed system—especially as the municipality is committed to spending the proceeds on improved public transport. All the enabling technologies for the system are readily available and it will soon be piloted with goods transport in the city centre. The market in credits that could emerge when the application is mature is expected to be analogous to the carbon trading system between nations that arose after the Kyoto protocol on climate change.

³ Fondazione Italiana Accenture is a non-profit organization. Its exclusive aim is to promote the very best and most valuable thinking and experience about innovation in the interests of the community.



By itself, road-user charging is not a panacea –but when successfully implemented, it offers the opportunity to enlist the public's support in developing more sustainable transport.

Now is the time to start.

About Accenture

Accenture is a global management consulting, technology services and outsourcing company. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. With more than 175,000 people in 49 countries, the company generated net revenues of US\$19.70 billion for the fiscal year ended Aug. 31, 2007. Its home page is www.accenture.com.

Copyright © 2008 Accenture
All rights reserved.

Accenture, its logo, and
High Performance Delivered
are trademarks of Accenture.

For more information,
please contact:

Europe

Mark Elliott
mark.elliott@accenture.com
+44 207 8440447

North America

Michael Boushka
michael.e.boushka@accenture.com
+1 913 3191119

Asia

Patrick Leung
patrick.w.leung@accenture.com
+852 2249 2291

