Intelligent Transport: 
How Cities Can Improve Mobility 
Moderator: Tammy Kulesa 
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John, thank you for joining me today.

John Reiners: Thank you for having me.

Tammy Kulesa: So around the globe we are seeing rapid city urbanization, increasing populations and new mega cities popping up. Some of the results of this mass citification are increased stress on the existing transportation infrastructures, increased congestion, a decrease in the citizen's quality of life and well-being and most significantly, a profound effect on the city's economic competitiveness.

The paper cites severe congestion can cost as high as 1-3% of GDP in developed and developing countries. So, John, IBM conducted research with over 50 developed countries and developing cities to study cities' transportation challenges. The paper discusses the common transport objective shared by cities. Their progress in implementing ITS and five recommendations on how they can accelerate progress by learning from leading practices.

John, will you summarize the findings for us?

John Reiners: Yes, Tammy, you're right about the magnitude of the transportation challenges our world faces. To understand what leaders are doing, in addition to the research we talked in depth to transport officials and experts from a number of cities around the world responsible for transport policies, programs and service operations.

Throughout the interviews we discussed their transport vision out of 2020 and their specific strategies and plans for implementing ITS in meeting their objectives. We found that although cities face unique challenges, their leaders share a number of common ambitions.

They most strive for cleaner, less congested cities and improved traffic flow, primarily through the use of enhanced public mass transit systems and other alternatives to private vehicles.

There is a widespread recognition that transport services need to meet rising public expectations for quality, in many cases this can be basic improvements and punctuality,
reliability, et cetera. All are under pressure to deliver more without significant additional investment to make better use with existing assets.

And one way of doing this is through matching demand better with existing supply. For example at different times of day or between modes where there are big changes in utilization levels. Or also mentioned that intelligent transport systems were very important in helping them achieve their transport vision.

And all shared significant challenges they were facing in making progress in implementing ITS and were interested in learning from others.

**Tammy Kulesa:** It’s amazing that cities and people across the world are all facing congestion and general mobility structures. Yet the face of our challenges are completely unique to our individual cities. And to your point, at the end of the day, we’re all seeking better mobility.

This is a quote from Scott Belcher, the CEO and President of ITS America. He says, “Allowing congestion to grind cities, suburbs and supply chains to a halt every morning and afternoon is unacceptable when we have innovative tools, technologies and strategies available to manage our transportation systems and utilize our infrastructure more effectively.”

John, can you tell us about intelligent transportation systems? What cities are doing the varying levels of maturity of the projects and their strategies for implementing ITS?

**John Reiners:** Yes, our findings suggests that intelligence has - intelligent transport systems are about much more than discrete software solutions. Leading cities are implementing broader strategies to help them move from single mode operations to more sophisticated, multi-modal transport services and integrated transport delivery.

Their strategies address three main areas; governance, transport network optimization and integrated transport services. Typically they progress through different levels of sophistication in each of these three areas, which we have documented in the IBM Intelligent Transport Maturity Model. You can see more about them in the paper.

And utilizing this broader definition of ITS will help cities gain wider benefits. Intelligent transport systems are relatively new and although they’re proven technically, they still present challenges. Many cities freely admit they have not yet gained all of the anticipated benefits from their ITS investments.

Regardless of a city’s current state of ITS maturity, there is typically room for improvement in continued development. We show this in the report by mapping the progress of the typical city against global leading practice using the maturity model which highlights some large gaps.

We then used our discussions with city transport officials to identify five key recommendations to help all cities as they implement ITS.
Tammy Kulesa: I have read through the five recommendations and would like to quickly go through them. Let’s start with the first recommendation that discusses the need for single transport strategy. Please tell us your findings.

John Reiners: Yes, our first recommendation is the need for a comprehensive ITS strategies that are long-term, flexible and integrated with wider strategies and plans for transport, the city and even the wider economy. Our research found that many ITS projects are developed independently and are not part of a wider strategic ITS or multi-modal transport plan.

This can lead to difficulties later in gaining the potential network benefits across all modes that ITS can offer. Of course this is easier said than done. It is particularly difficult if, as in many cases, there are many different agencies and supplies involved in delivering different modes of transport.

In these cases, there is a need for excellent collaborative workings to develop and implement coherent strategies, policies and plans. Political sponsorship is key as well. There are lots of good examples where cities are doing this well. Interestingly, the most admired cities from our interviews, London, Stockholm, Singapore, were largely admired for their track record of developing and implementing holistic transport strategies.

Stockholm is largely known for its road charging schemes but really the story is about an integrated plan to create the world’s most accessible city, included a number of initiatives including an integrated fare card.

Tammy Kulesa: Stockholm is truly a fascinating case study. It enforces the need for integrated strategies. But also leads us directly into Recommendations 2 and 3 which are around customer centricity and integrated service deliveries. Can you discuss?

John Reiners: Yes, Recommendation 2 is about the need to adopt customer center strategies to improve services but also to understand and influence customer behavior patterns. There is a big change happening here. Public transport authorities have not been the most customer-friendly organizations, but this appears set to change.

Customers expect better and more tailored services. If cities want to achieve their objectives and achieve modalship to public transport, they need to understand what customers want and deliver improved services. Many transport officials are talking about increasing their understanding of customer patterns through for example using CRM systems.

Much in the way retail organizations for example routinely do now. ITS technologies then give them the capability to vary pricing, thereby influencing customer's behaviors. London is an interesting example, as they have achieved a 4% modalship to buses.

This was achieved through a range of strategies including increasing the quantity and quality of buses, creating prioritized lanes, reducing fares and in the (same thing) increasing the cost of care usage through congestion charging.
The third recommendation is about integrating service delivery which is mentioned by many of our survey respondents as the most critical ambition of their transport strategies, yet also one of their greatest challenges.

The demand is partly driven by the need to provide a seamless service to the customer. So they can efficiently plan their overall journey rather than have to do the work of coordinating services from different suppliers. In this way, customers can be offered the optimized journey, irrespective of mode, which must be the aim of transport systems.

Integration is also needed with other suppliers, e.g. to offer expanded services to customers, for example to make small payments. The other real driver of the service integration is to help transport authorities get a holistic view of transport demand so they can better plan transport supply to match it and thereby provide optimized transport services.

This view is needed across all modes to understand fluctuations according to season, day of the week or time of day as there can be significant peaks and troughs in demand. The ambition is to move more towards real-time monitoring of transport performance so temporary mismatches in supply and demand can be managed.

However, the reality is that most cities’ transport services are still delivered by individual modes. Integration is very difficult; it is needed on many levels. Integration of organization, business processes, information standards and integrating Legacy systems.

There are, however, some very good examples where cities have made good progress and delivered real benefits. We cite the example of Singapore where the Symphony integrated fare card can be used for transport across different modes and also provides a purse for small purchases.

Consumers benefit and the Singapore LTA benefits from having a view of overall transport usage to feed into planning and traffic management.

**Tammy Kulesa:** You described transportation systems that I would love to have here in my home city of Philadelphia. But realistically they seem so far off due to many of the challenges we have already discussed, but also because of funding issues.

The fourth recommendation in the paper is around securing funding and applying new business models. Can you talk briefly about what Stockholm and London did to aid the success of their ITS implementations?

**John Reiners:** Yes, several city officials described difficulty of securing funding as a significant barrier to achieving their transport visions. Officials compete for funding both with counterparts from different modes of transportation and more traditional infrastructure projects. The further challenge is getting public support for ITS projects. Particularly, citizens are unconvinced about the benefits are asked to contribute to cost through increased fares.

ITS proposals need to be accompanied by convincing business cases and supported by evidence that benefits are being delivered. Evaluations should measure a range of benefits beyond financial payback. For example, improvements in numbers of accidents, a
reduction of traffic related deaths, reduced emissions and the customer benefits derived from an enhanced traffic network.

ITS technologies create new opportunities for revenue raising, road user charging being the most obvious example, but also variable pricing based on emissions or time of day.

In addition to raising valuable revenue, these techniques can impact customer behavior patterns. However, cities should be cautious that price increases and new charges do not lead to public opposition. It is notable that both London and Stockholm promoted their road usage charging plans not only by stating that the benefits of reduced congestion and lower emissions, but also by emphasizing that fee revenue would be reinvested in the transport network.

Ideally cities need an effective overall business model that exploits new opportunities for revenue and at the same time prices transport in a way that supports the city's transport objectives.

Our fifth and last recommendation relates to managing the complexity of implementation. Cities raised a number of concerns about implementing ITS systems and these are well founded as unfortunately there are several examples were ITS projects have failed to deliver the anticipated benefits.

Many of these problems are familiar to implementers of large projects in government and elsewhere. For example, the shortage of skills, the complexities, the systems integration, managing change with employees and also with customers. I think the solutions here are well known based on successful large and complex projects elsewhere.

Tammy Kulesa: It is clear that cities around the world face common transport challenges, from increasing congestion, to safety concerns and aging infrastructure to a lack of funding and increasing environmental impact.

We are also seeing an increased focus from our transport officials to implement smart solutions that address these challenges and provide improved mobility in their cities, better services for citizens and a more cost effective transport network.

John, what is your final message to city and transportation officials?

John Reiners: The interview has reached consensus on the areas that need to be tackled and we have proposed some solutions. Ultimately, it's the attributes of city transport leaders themselves that will determine their progress in implementing ITS.

Our research suggests that innovative city officials exhibit a common set of attributes. They firstly provide leadership and vision in transforming their network of modes of transportation through cross-modal collaboration. They look far into the future to develop broad strategies, yet they also provide leadership to help ensure short and medium terms plans are executed.

Secondly, they treat transport as an integrated service. They move from just managing infrastructures to providing integrated services, making the style of management a team sport that involves collaboration among customers, suppliers and all levels of government.
And finally, they adopt a customer-centric approach to transport strategy and execution. They understand and influence customer perceptions and behavior patterns, share information in a transparent way and are committed to delivering improved customer satisfaction.

As cities move towards more integrated systems and sharing more information with customers and stakeholders, consumers enjoy faster and better services, cleaner air, greater alignment and collaboration among transport stakeholders and pride in knowing their cities are becoming more economically competitive than before.

Tammy Kulesa: John, thanks again for an enlightening and engaging conversation. For our listeners, if you would like to read and download the full report please visit IBM.com/gbs/intelligent-transport. Thank You.