CGI

Transforming travel in the Netherlands through digital technology and behavior modification
CGI delivers smart and sustainable travel solutions as part of nationwide program

While the Netherlands is geographically small, it's one of the most densely populated countries in the world—with more than 17 million people—and boasts one of the world's largest economies. With transport as a key driver of its economy, the Netherlands has invested in a modern infrastructure that includes dense road and rail networks, the largest port in Europe (Port of Rotterdam) and Europe's third busiest airport (Amsterdam Airport Schiphol).

As the country's population and economy continues to grow, its need for smarter, more sustainable travel grows. Adding new infrastructure is no longer a feasible option. Instead, the country is looking to drive improvements across its existing infrastructure and, in 2011, launched a nationwide program—Beter Benutten (Better Utilization)—to make its road, rail and water networks more accessible and sustainable.

Meeting the demands for smarter, more **sustainable travel**

The Better Utilization program is administered by the Dutch Ministry of Infrastructure and the Environment and involves the collaboration of regions, municipalities and businesses across the country. Its first goal was to reduce traffic congestion in the busiest regions by 20 percent in 2014, and this goal was achieved through more than 350 initiatives, such as adding more bicycle parking and providing better travel information.

Because of its success, the program was extended to 2017, with the aim of achieving a 10% improvement in travel time from door-to-door during rush hour in the busiest areas by the end of 2017. To achieve this, approximately 400 projects are currently in progress across 12 participating regions.

Building strong partnerships to change **driver behavior**

As part of the Better Utilization program, numerous Integrated Mobility Management Architecture (IMMA) projects have been commissioned—each focused on improving urban mobility by encouraging road users to adopt new behaviors to reduce traffic congestion. CGI is currently involved as a sub-contractor with three of those IMMA projects, partnering with prime contractor and digital native Innovactory to support the regions of Utrecht, Central Netherlands and Zuid-Limburg in implementing CGI's digital SmartTravel solution. More regions all over the country will join the IMMA program in the next year and a half.

Changing driver behavior is more than just a technology challenge. It demands business, marketing and behavior modification expertise to drive awareness and adoption among drivers and influence their behavior. Innovactory is partnering with several companies, in addition to CGI, to deliver the full scope of expertise, including MapTM

(for transport engineering expertise), XTNT (for behavioral change and employer adoption) and Buro Benk/Joint Marketing (for marketing services).

With the required expertise in place, Innovactory, CGI and the other partners are providing strategic guidance to help define each region's future vision, as well as its requirements and key success factors, developing a clear roadmap for each region's digital journey. As each roadmap is implemented, they are meeting every two weeks with client management teams to discuss project issues and progress. They also are collaborating closely with other participants, including municipalities, road accessibility managers, employers, individual commuters and more to generate awareness, drive adoption, monitor usage and report results. In addition, CGI is providing complete back-end system development and integration services for each region.

How **SmartTravel** works

SmartTravel combines digital technologies such as mobility, gamification, big data analytics and travel mode detection to influence and reward driver behavior. The aim is to encourage drivers to change their behavior by, for example, using a bicycle instead of a car and, when using a car, traveling outside of rush hour times.

Using GPS capabilities on smartphones, without the need for additional hardware, SmartTravel analyzes trips and modes of transport for the purpose of influencing and rewarding positive driver behavior.

Drivers receive real-time travel information in the form of alternative routes and/or alternative modes of transport, allowing them to make better travel choices to help alleviate traffic congestion. Making good choices, such as using a bike instead of a car, for example, is rewarded with points, which can then be exchanged for gifts in a specially created online shop.

Underlying platform is one of a kind in the Netherlands

One of the unique aspects of SmartTravel is its underlying platform—Smart Trip Analytics Platform. CGI is the only company in the Netherlands with a platform that allows for multi-modal classification of trips without using additional infrastructure, such as roadside cameras or other hardware, such as dongles in cars.

Accuracy rate
97.5%

The platform uses an innovative set of algorithms that convert dynamic travel data, from such sources as GPS traces received from road users, into actual trips, and also detects the different modes of transport used. The modality detection is used to determine how many points a user will receive for "good behavior" and has an accuracy rate of 97.5%. The platform also allows insights to be generated from the data that can be used to make recommendations related to economical and safe driving. All data analytics from the system strongly support sustainable behavioral change.

Another unique aspect is a special fraud portal CGI has developed to automatically detect unusual or irregular behavior by users. These types of behaviors are potential indicators of fraudulent activity by users attempting to obtain rewards unfairly.

CGI's end-to-end smart travel and digital transformation capabilities

In a world of smart travel, the possibilities are endless. Traffic is automatically redirected just seconds after an accident. Speed limits are automatically adjusted to the flow of traffic. Extra lanes become available before any bottlenecks, and cars not only "talk" but also drive themselves.

CGI is at the forefront of smart travel, offering a wide range of solutions and services related to traffic management, intelligent transport systems, infrastructure charging, dynamic transport management and more. Using innovative smart technologies, we work to improve network capacity management, minimize traffic delays, improve fuel consumption, increase traffic safety, reduce carbon emissions and facilitate trip planning. At the same time, we help transport operators improve efficiencies and reduce costs.

We're working to revolutionize how travel is thought about and done.

CGI's smart travel capabilities are part of a broader portfolio of digital transformation capabilities that are helping clients worldwide transform into digital enterprises end to end. In today's digital era, organizations across sectors face a competitive urgency to digitalize to keep pace with fast-changing market dynamics. CGI is working with clients across the globe to implement digital strategies, roadmaps and solutions that revolutionize the customer/citizen experience, drive the launch of new products and services, and deliver efficiencies and cost savings. By modernizing legacy assets and connecting them to digital business and operating models, CGI is helping organizations to transform for the future and secure their position in the digital world.

To learn more about our smart travel and digital experience, ideas and end-to-end capabilities, contact us at info@cgi.com.

Delivering value through
innovation and collaboration

The ultimate goal of each IMMA project is to significantly reduce rush hour travelers per day and per region by the end of 2017 through driver behavior modification. Meeting the specific reduction targets set by each region is an ambitious undertaking because behavioral change is a complex sociological and psychological challenge. However, the advantage of SmartTravel is that it motivates users both intrinsically and extrinsically, providing rewards for making a positive contribution to traffic flow and the environment.

Changing driver behavior has become a proven means for improving road accessibility and travel sustainability. Intermediate metrics indicate each of the three regions is on track to achieving their 2017 targets. Key factors in the success of each project to date include the following:

- **Reliability:** CGI's Smart Trip Analytics Platform captures what the journey of an individual traveler looks like with 97.5% reliability in terms of modalities used (car, motor, bike, train, urban public transport), time of travel and route taken. This ensures high accuracy in presenting alternative route/travel mode recommendations, which leads to high user adoption and ultimately successful behavior modification.

- **Innovation:** Innovative technologies, including advanced mobility, gamification, data analytics and behavioral modification, have been introduced in each region. SmartTravel seamlessly integrates these technologies to deliver a digital solution that functions via smartphones, eliminating the need for extra hardware and reducing operational costs.

- **Scale and capabilities:** SmartTravel and its underlying Smart Trip Analytics Platform offer the scale and capabilities required to drive behavior modification and alternative smart travel options across all 12 regions involved in the Better Utilization program, as well as the entire country. With the successful launch of the solution in 3 of the 12 regions, other regions, which are currently considering SmartTravel, can be confident the solution is future proof.

- **Privacy and cybersecurity:** Privacy and cybersecurity are top concerns for both travelers and the government. With extensive cybersecurity expertise in both the public and private sectors, CGI has integrated advanced cybersecurity capabilities into SmartTravel to provide for data privacy and regulatory compliance and is hosting its underlying platform in a highly safe and secure environment. CGI met all of the strict security requirements of the IMMA program, as well as related legal regulations, and set up processes for ensuring the privacy of user data.

- **Change management:** It has been difficult for regional authorities in the Netherlands to move from legacy road cameras and sensors to smartphones. CGI has helped to facilitate the transition by actually demonstrating how SmartTravel works. In one city, for example, CGI software developers joined other client and partner developers to test the solution by using it as any ordinary user would and reporting on the results. This test pilot helped to assure regional authorities of the solution's feasibility and their expected return on investment.

- **Proven partner:** CGI is a major partner of both the national road authority Rijkswaterstaat (which is part of the Dutch Ministry of Infrastructure and the Environment), as well as several regional road authorities in the Netherlands, Over the past decade, we have delivered a range of high-quality technology services for these authorities. With this experience and track record, the three regions that chose CGI knew they were gaining a reliable, trustworthy partner.

Sharing the vision and journey of smart,
sustainable travel

CGI shares the Ministry and regions' vision for smart, sustainable travel solutions and is a committed partner on their journey toward more accessible and cleaner cities across the Netherlands. Although the Better Utilization program will end in 2017, the Ministry has decided that the program's supporting behavioral change projects will continue. Serving as a strategic partner and providing end-to-end capabilities, CGI is working to ensure each region's smart travel journey is a success from beginning to end.

cgi.com/digital-transformation

Founded in 1976, CGI is one of the largest IT and business process services providers in the world. Operating in hundreds of locations across the globe, CGI helps clients become customer-centric digital organizations. We deliver high-quality business and IT consulting, systems integration and transformational outsourcing services, complemented by more than 150 IP-based solutions, to support clients in transforming into digital enterprises end to end. CGI works with clients around the world through a unique client proximity and best-fit global delivery model to accelerate their digital transformation, ensure on-time, within budget delivery, and drive competitive advantage in today's increasingly digital world.