Accenture helps London develop a
blueprint for transforming the way it
delivers service to citizens by building
an intelligent city

High performance. Delivered.

For tomorrow's intelligent cities, high performance will be characterized by the sharing of data across city systems to enable better use of scarce resources, reduced environmental impact, and a superior quality of life for individual citizens and businesses. In fact, cities will compete for highly skilled people and the economic development they enable.

Accenture Sustainability Services helped the Greater London Authority develop a proposal for demonstrating the benefits of an intelligent city on a large scale in East London, an area that offered many untapped opportunities. The proposal has already attracted funding from the Technology Strategy Board and spurred the creation of the Smart London Advisory Board. Thanks to Accenture, London's ambitions to become a 21st Century intelligent city are off to a good start.

## Client Profile

Established by an Act of Parliament, the Greater London Authority is the administrative body for Greater London. It consists of a directly elected Mayor and an elected 25-member London Assembly. It has powers over transport, policing, economic development, and fire and emergency planning. Its fourfold mission is to spend money wisely, maintain high standards, provide governance, and oversee the election of the Mayor and Assembly.

## How Accenture Helped

By any measure, London is one of the world's premier cities and by 2025 it is expected to be the fourth-largest global city in terms of gross domestic product, behind Tokyo, New York and Los Angeles. London offers unrivalled access to markets, talent and cultural diversity, and is a globally renowned destination for both big and small business, hosting one in five of Europe's 500 biggest companies and a quarter of a million start-ups and small/medium-sized businesses (SMEs), according to a 2011 UK Department for Business Innovation and Skills report.

London's success brings with it some significant challenges: high population growth is placing the city's systems, many of them old, under severe strain, while traffic congestion and ensuring continued access to affordable, secure and low carbon energy pose particular challenges. In addition, certain parts of the city find it hard to access economic opportunities.

The city is a microcosm of national and global challenges created by the massive and ongoing movement of people into cities. London's population is expected to grow by 1 million people in the next two decades, placing further strain on its infrastructure. More broadly, the urbanization of the global population has enormous implications for the environment. Cities already account for 71 percent of global energy-related $CO_2$ emissions, a proportion that is rising.

London's challenge, therefore, is to find new ways of using its infrastructure more effectively to improve the quality of life for individuals and opportunities for businesses, while reducing its impact on the environment. The Mayor of London has set a number of overarching economic, social and environmental goals to make London the best big city in the world in which to live and work.

In pursuit of these goals, London wished to compete for £24 million in funding from the Technology Strategy Board. The board is a UK government body established to promote research into, and development and exploitation of, technology and innovation for the benefit of UK businesses, with the aim of increasing economic growth and improving quality of life.

The funding is for the development of a large-scale demonstration of the value to be gained from integrating city systems. It is intended to enable businesses to test the effects of this integrated approach, giving UK cities the opportunity of exploring new ways to support local economies and deliver an improved citizen experience.

Thirty UK cities were awarded £50,000 each to conduct a three-month feasibility study and write a formal submission.

The Greater London Authority called on Accenture Sustainability Services to help it compete for the £24 million of funding but also to develop momentum for exploring alternative funding sources regardless of the outcome of the bid. Its decision was based on Accenture's leadership in the intelligent cities domain, and its track record in successfully helping cities like Yokohama, Amsterdam and Malmö implement intelligent city projects. Other key factors were Accenture's existing offering, Intelligent Infrastructure & Cities, and its value-targeted approach based on the belief that sustainability initiatives should be firmly linked to creating innovative business and economic models.

Tapping into a host of subject-matter specialists from across Accenture's global organization, including the Strategy, Sustainability, Risk, Automotive, Industrial Equipment, Travel and Transportation and Local Government practices, three Accenture specialists worked with the Greater London Authority to develop a compelling feasibility study for the East London area. East London was considered to be an ideal demonstration site because its combination of socio-economic challenges and untapped opportunities closely parallel those in other UK (and, indeed, global) cities. Solutions developed for East London would thus be widely applicable.

The joint Accenture-client team focused on collaboratively developing innovative solutions that help to integrate and optimize the major systems of the city, with specific focus given to transport, energy and health. Accenture engaged over 70 stakeholders in three innovation workshops to help generate project concepts. These stakeholders included the Greater London Authority itself, Transport for London, local boroughs, SMEs, infrastructure and service providers, financial institutions, telecommunication companies, utilities, universities, housing and real estate developers, investors and technology providers.

The innovation team evaluated the top 25 ideas from the workshops using a prioritization methodology based on value (impact on local economy, innovation in service delivery, broader applicability) versus ease of implementation (time to first implementation, need for new regulations, willingness and engagement of critical stakeholders).

Accenture used the highest scoring ideas from this evaluation and adopted a practical view of the needs of citizens and businesses in East London to develop an innovative set of focus areas for investing the £24 million of funding, complete with conceptual and technical specifications, and costs and benefits. A governance model and delivery approach was also created.

These focus areas were:

Adaptive Urban Logistics to address the congestion and pollution caused by the rapid growth in light freight on London's roads by promoting the efficient movement of goods around the city. Proposed interventions included new ways for companies to procure goods, the use of technology to monitor and route delivery vehicles, the sharing of excess space in delivery vehicles, and the use of electric vehicles linked to electricity grid-balancing solutions.

Networked Asset Visualizations to provide a holistic digital view of infrastructure above and below ground, designed to increase the efficiency of infrastructure renewal. Utility companies undertaking road works will be provided with enhanced access to maps of underground assets like power cables and water pipes, simplified enquiry systems and three-dimensional visualizations that will dramatically reduce the associated disruption, pollution, economic inefficiencies and risk of accidents. This program will build on emerging collaborations between London's utilities to plan a better, more integrated infrastructure for East London's major growth areas and to deploy new essential systems such as district heat networks.

Intelligent Heat Pathways to realize the value of district heat networks through the use of waste heat from London's underground rail systems, electricity substations and data centers. This initiative will provide low-cost, low-carbon heat to an intelligent district heat and power network. Thermal storage, decentralized sensing and dynamic power generation will also be used to balance heat and power demands in real time, offering a crucial means to decrease local fuel poverty.

Neighborhood Systems to retrofit the households served by these heat and power networks by equipping them with a smart communications infrastructure, consumer interfaces and sensors that support the delivery of innovative services. Examples include telehealth and telecare systems (providing remote medical monitoring and diagnosis) thus reducing the need to travel. The same user interface can also provide residents with an integrated view of real-time domestic resource consumption (water/gas/electricity). Neighborhood-wide systems would feed into a community resource database and local services platform, with the intention of building a network of local service providers and, ultimately, a community that is more resilient and uses resources more efficiently.

Micro-work Platforms to support employment and career-building in disadvantaged communities. This would involve working with local employment agencies, volunteer groups and business alliances to develop and roll out an online platform. Associated new business

models will enable flexi-working, volunteering and entrepreneurship. This initiative will initially target students, care givers and the newly self-employed, with the potential to facilitate around 5.6 million hours of additional employment per year.

Perhaps the most important focus area is Digital and Organizational Integration, which is intended to integrate all the above work packages' outputs into a common digital infrastructure with an associated performance management framework. This work stream would include a Digital Design Authority, accountable for developing the data dictionary and the translation capability to pool the urban information into a common platform, exposing it in open protocols to local residents, businesses and the Future Cities Catapult, stimulating further innovative applications. (The Future Cities Catapult is a Technology Strategy Board initiative to provide a platform for businesses, city governments and academia to collaborate in developing the products and services that the cities of the future will need.)

The final proposal, named Linked London, targeted three neighborhoods in East London: Old Street, Bromley-by-Bow, and the Olympic Park. It was based on demonstrating the economic, social and environmental value of integrating systems by generating:

- Operational savings and environmental benefits in the public sector.

- Efficiencies and new commercial opportunities in the private sector.

- Enhanced access and utility to citizens.

During the process of developing the feasibility study, Accenture helped the Greater London Authority to convene a group of public and private partners to commit to providing support for a successful implementation of Linked London.

## Delivering Outcomes for High Performance

With Accenture's help, London has been able to demonstrate convincingly its commitment to transforming the way it delivers services to its citizens. The Linked London proposal quantifies the benefits to be gained from integrating the city's core services:

- Savings of £5.6 million per year from managing underground assets like pipes and cables more intelligently.

- Opportunities for 2.2 million hours of additional paid employment per year.

- An average reduction in household utility bills of £250 per year.

- Electricity savings of 1,130 megawatt hours per year, enough to power 1,250 homes.

- Gas savings of 59,000 megawatt hours per year, enough to heat 5,200 homes.

- Water savings of 886,000 m3 per year, enough to fill 350 Olympic swimming pools.

- Reduction of CO2 emissions by 104,200 tonnes, equivalent to nearly 87,000 return flights from London to New York.

Out of 29 UK submissions, Linked London was placed on a shortlist

of four by the Technology Strategy Board. The London team has been offered £3 million of funding to take forward specific aspects of the bid. London's Demonstrator project will see it map utilities in three dimensions, develop the innovative micro-work program using an online time management platform and also promote the efficient movement of goods around the city through innovative uses of technology, space sharing and electric vehicles.

Excitement generated by the Demonstrator project has also added impetus to London's overall drive to become a truly intelligent city. Following Accenture's engagement, a Smart London Advisory Board was set up to harness content experts from academia and the private and public sectors to support the realization of London's ambitions in this area.

In addition, and partly as a result of the work Accenture helped to complete, the Technology Strategy board has decided to locate a Future Cities Catapult in London. These Future Cities Catapults are technology and innovation centers established by the Board to help cities become smarter and more forward-thinking. The Future Cities Catapult hosted by London will attract £50 million ($77 million) of funding from the Technology Strategy Board over five years, a figure that is expected to rise to £150 million ($230 million) once private-sector funding is taken into account.

## Accenture Management Consulting in Action

The Accenture Management Consulting Way's focus on providing solutions to specific challenges proved to be decisive in helping London to create a series of compelling opportunities for integrating strategic information and communication technologies into London's design and operation. The team linked the key challenges of London boroughs and the strategic imperatives of the Mayor's office, along with the opportunities for new services and the enabling digital strategy required to create a system that maximizes return on current and future investments and delivers quantifiable benefits. Accenture's ability to call on subject-matter specialists from across its global talent networks as needed, and its profound local knowledge, enabled it to muster the support of key stakeholders across multiple sectors.

## About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with approximately 261,000 people serving clients in more than 120 countries. 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. The company generated net revenues of US$27.9 billion for the fiscal year ended Aug. 31, 2012. Its home page is www.accenture.com.

## About Accenture Sustainability Services

Accenture Sustainability Services helps organizations achieve substantial improvement in performance and value for their stakeholders. We help clients leverage their assets and capabilities to drive innovation and profitable growth while striving for a positive economic, environmental and social impact. We work with clients across industries and geographies to integrate sustainability approaches into their business strategies, operating models and critical processes. Our holistic approach encompasses strategy, design and execution to increase revenue, reduce cost, manage risk and enhance brand, reputation and intangible assets. We also help clients develop deep insights on sustainability issues based on our ongoing investments in research, including recent studies on consumer expectations and global executive opinion on corporate sustainability and climate change. Find out more at www.accenture.com/sustainability or contact us at sustainability@accenture.com.

## Contact Us

Accenture is committed to helping forward-thinking organizations position sustainability as a key lever to long-term success. To find out more about how Accenture can help you meet your sustainability imperatives and chart a course toward high performance, visit www.accenture.com/sustainability or contact us at sustainability@accenture.com.