

What are Smart[®] Solutions?

With smart technologies — Internet of Things (IoT), sensors, data platforms, robotics and artificial intelligence — infrastructure owners in Canada will soon have the capability to improve operations using previously unavailable data.

With this robust information, our built environment will be infinitely better-equipped with systems that can automatically adjust according to our behaviour and proactively adjust operations in response.

WSP Smart* Solutions help create evolvable places based on human-centred design including multiple system inputs and connections between previously separate systems through a cloud of useful, informative data.

Using this data, we help create efficiencies, improve sustainability and digital communication, and encourage economic development, enabling communities to thrive.



Improve the livelihood, safety, and quality of life for communities.



Improve business environments, attract investments and make doing business easier.



Support resiliency and sustainability initiatives, increase footfall and support active transportation.



Drive efficiency and maximize investments by extending the life of infrastructure assets.







WSP Smart® Solutions help Canadians connect



A smart approach to healthcare

I'm blessed to be in good health. My wife, however, has some medical challenges that we're working through. I'd like to make sure that when visiting hours are over, she's safe and comfortable at the hospital she's in.

We help outfit hospitals with internet connected sensors, building automation, security, communication, wayfinding, smart parking, data storage platforms, and user apps to help people and staff enjoy a safer, sustainable and more comfortable environment.



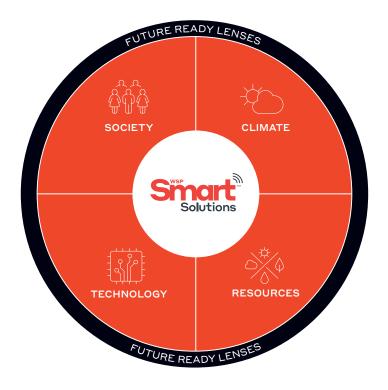
A smart approach to public transit

I'm concerned about the environment. I want my transit operator to make it easier for me to contribute to lower pollution through eco-friendly transit options.

Cities using e-bus fleets can cut ethanol, biogas, and biodiesel emissions considerably. WSP helps city service providers and businesses to convert fleets to electric (e-fleets). We also help manage and maximize fleet efficiency through our asset management tools and propriety software options. Not only do these offerings help the operational efficiency and sustainability of transportation networks, they improve the quality of service and increase ridership safety while supporting lower-carbon transit.

WSP Smart® Solutions are based on our Future Ready® research

We use our Future Ready* research to shape how we think about engineering and advisory solutions, helping you plan for tomorrow's problems today. Our WSP Smart* Solutions can expand on your existing strategy, looking toward the future through the lenses of societal, technological, resource and climate trends. This allows us to create resilient and connected infrastructure solutions, strengthening our existing service offerings to the benefit of developers, decision makers, utilities, transit authorities, business owners and service providers.









SCENARIO PLANNING

WSP Smart® Solutions help Canadians connect



A smart approach to connected communities

I'm proud of where I live, but I also understand it is easy for people to feel disconnected in a big city. I'd like to be part of a community where I feel more connected to others.

We use data and predictive analytics to improve daily life through efficient services, and create new possibilities for economic growth and healthier environments. WSP Smart* solutions help reduce the negative impacts of densification through apps like on-line book clubs that make life more accessible for people living in densely populated areas including disabled, youth, elderly and disadvantaged groups.



A smart approach to resiliency

I'm concerned about our future. As a young Canadian, I know climate issues will impact me most. How can I be sure where I live will be able to handle extreme weather and natural disasters?

WSP Smart* solutions offer advanced internet-connected sensors, meteorological systems, satellites, pollutant measuring devices, data storage platforms and applications to allow for improved analytics. These tools and other smart analytics help experts predict undesirable conditions such as floods, seismic or other conditions that threaten public safety, security, or interfere with natural environmental conditions.

Benefits of Smart® Solutions



Value Added

WSP Smart[®] Solutions are integrated in everything we do:



PROPERTIES & BUILDINGS

- Easier indoor wayfinding and accessibility information
- Energy conservation / lower CO₂ emissions
- Reduction in operating costs
- Optimized usage of building space
- Increased employee wellness and productivity
- Healthier, safer and more secure environments
- Enhanced retail experience through integrated Point of Sales systems
- FM Ready (facility management software and services)
- Data-driven decision making on the popularity of retail



TRANSPORTATION & INFRASTRUCTURE

- Safer commutes and more apps for active transportation users
- Increased footfall for local businesses
- Efficient goods movement
- Reduction in road congestion
- Increased adaptability of systems for future changes
- Analysis and access to tens of thousands of development projects
- Infrastructure and policy initiatives through our ground-breaking proprietary PRIME software
- Optimized water and waste water management
- Development opportunity tracking, key industry contacts and emerging growth market trends
- Proactive planning for urban growth



ENVIRONMENT

- Improved energy conservation
- Accurate energy use monitoring
- Carbon reduction strategies
- Proactive forest fire detection
- Digitalized assets
- Safer, cheaper and higher accuracy mapping using 3D laser scanning
- Faster data integration in CAD/ GIS and web platforms
- Automated data collection, verification and analysis



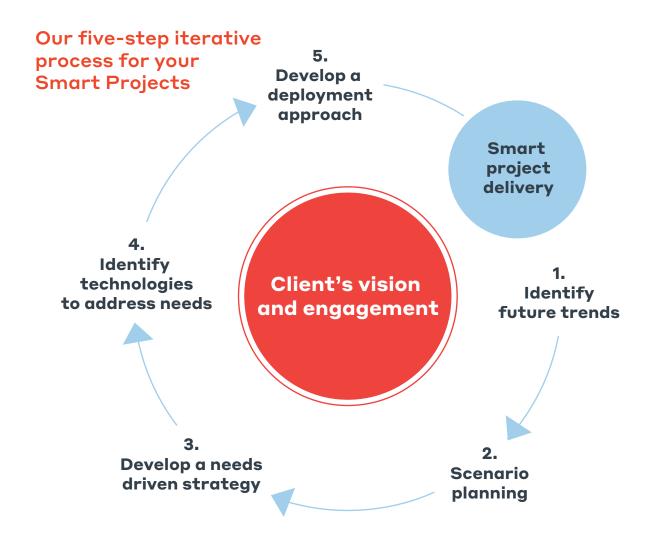
ENERGY & RESOURCES

- Forecasting demand for energy production, transmission and distribution
- Real-time communication between devices and infrastructure
- Automated protection and control of energy systems
- Integrated IoT enabled devices for energy efficiency and resiliency
- Proactive and demand controlled smart grids
- Decentralized micro-grids
- Integrated smart metering
- Self-healing grid capabilities

The WSP Smart[®] Solutions process

The WSP Smart* Solutions team has a unique approach to help guide and manifest our clients' vision, making their existing infrastructure more intelligent,

connected and adaptive. We use a five-step iterative process to guide this transition, making sure that our intelligent infrastructure solutions meet your goals.





SCENARIO PLANNING

WSP Smart® Solutions help Canadians connect



A smart approach to urban mobility

As a first responder, I need to know I can get to the scene of an emergency in the fastest way possible. How can local officials do a better job of ensuring the safety of other drivers, pedestrians, cyclists and my fellow first responders?

WSP designs intelligent transportation systems (ITS) equipped with sensors and signal processing capabilities to provide two-way communication and direct actions, guiding drivers to their destination safely. We use pedestrian and vehicle monitoring to provide real-time information on traffic, congestion and incidents so drivers can avoid delays and distractions to arrive on time.



A smart approach to workplace design

I need to be sure that my employees are working in the most secure, stable and comfortable environment possible. How can I optimize my workplace to provide the best possible conditions for my staff while reducing operating costs?

We help create building environments that allow for the connected and customized use of technology to improve user experience, employee wellness and productivity through smart elevators, room lighting, water use, and temperature management. Smart device integration allows for numerous building services to be computer-controlled, based on weather or other conditions. These features increase energy savings and create optimal conditions for visitors, employees and tenants.



Smart data platforms help communities

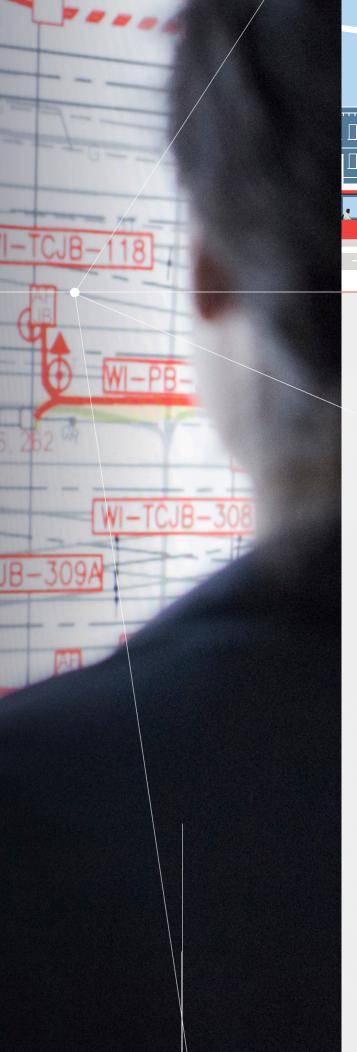
Sensors and IoT produce massive data sets. What we do with the data is the key to unlocking value from Smart.

In order to make Smart Data Management a valuable contribution to daily life, data platforms are created to receive data from connected physical assets outfitted with sensors. The sensors communicate via telecommunication networks and send data to the

cloud to allow for rapid data analytics. The cloud offers a lower-cost, real-time capability for preventing service interruptions and lowering equipment failure rates. This data helps create safer places through intelligence gained from IoT devices such as CCTV cameras, traffic management systems, smart grids with smart meters to keep electricity flowing and smarter buildings to create comfortable, evolvable and safe places.

The evolution of Smart Data Management

The evolution of official abata management			
Historical	Diagnostic	Predictive	Prescriptive
STAGE 1 WHAT HAPPENED? - Equipment failures - Building comfort complaints - Traffic congestion - Collision zones	STAGE 2 WHY DID IT HAPPEN? - Root cause analysis - Fault analysis - Alarm management - Dashboard monitors	STAGE 3 WHAT WILL HAPPEN? - Power interruption - Severe weather - Passengers per hour - Cars per day	STAGE 4 WHAT SHALL WE DO? - Power load balancing - Energy storage - Passenger experience - Intelligent Transportation Systems (ITS)





SCENARIO PLANNING

WSP Smart® Solutions help Canadians connect



A smart approach to institutional spaces

Between late nights and early mornings, I spend a lot of time on campus. Most important to me is knowing I'm safe on my campus, no matter the time of day.

Our Smart Building designs for Canadian universities include internet-connected sensors, building automation, security, communication, way-finding and smart parking to guide drivers to open spots. These design and advisory capabilities under our WSP Smart* Solutions tools help make universities and colleges safer and more accessible for students and staff.



A smart approach to urban spaces

It can be challenging to raise a family downtown. I'd like to make sure where we live is safe and resilient. If I want to take my daughter out, I'd like the travel to be seamless and the destination information easy to find.

Do you know the use of internet-connected sensors, such as weather and environmental sensors, security CCTV systems, smart lighting, or internet-based news and music services can transform how people experience public spaces? Public Wi-Fi and digitally enhanced libraries can also offer access to information for public events, wayfinding, digital displays, sustainability and accessibility.



WSP is one of the world's leading professional services consulting firms. We are dedicated to our local communities and propelled by international brainpower. We are technical experts and strategic advisors including engineers, technicians, scientists, project managers, planners, surveyors and environmental specialists, as well as other design and program management professionals. We design and deliver lasting solutions in the Buildings, Transportation, Infrastructure, Oil & Gas, Environment, Geomatics, Energy, Resources and Industry sectors as well as project delivery and strategic consulting services. With over 8,500 talented people across Canada and 49,000 globally, we engineer projects that will help societies grow for generations to come.







