

# Key technolgies and skills we use to set up your underground network solution

- Consulting on your digital transformation strategy
- Supporting Change Management along the whole journey
- Innovating customized business models
- Designing best in class solutions tailored to your needs
- Implementing of on-premise, hybrid, or cloud solutions
- Installation, implementation, and integration services for IT- and OT-Systems
- Developing and customizing your Data Analytics applications
- Creating state of the art User Experience and User Interface design (UX/UI)
- Providing world class cybersecurity strategies
- Qualifying third-party vendors
- Training your staff on newly deployed technologies
- On and offsite support for maintenance
- Providing access to our ecosystem
- Solution Workshop

All based on our proven project management, quality, health and safety standards to provide you best in class services for sustainable business!

360°

Transparency on your assets!

further benefits at a glance



Improved safety



Status Transparency



Prescriptive Maintenance



Smart Scheduling



Inspection Support



Control



Smart Investment



Instant Alarms

## Get in touch

Leverage from our capabilities, infrastructure and domain expertise to provide your utilities with the technology solutions they need to integrate the digital transformation and remain competitive and proactive.

Business request:  
[iot-siemens.cd@siemens.com](mailto:iot-siemens.cd@siemens.com)

## About Siemens IoT Services

We provide end-to-end IoT solutions and create your unique digital journey - from consulting to design and implementation.

Offering unmatched industrial DNA paired with strong IoT experience to drive sustainable growth in a digital world, we support you globally to successfully re-invent your business. For more, visit [www.siemens.com/iot-services](http://www.siemens.com/iot-services)

SIEMENS  
*Ingenuity for life*

Siemens IoT Services

Underground  
Network  
Solutions

[siemens.com/iot-services](http://siemens.com/iot-services)

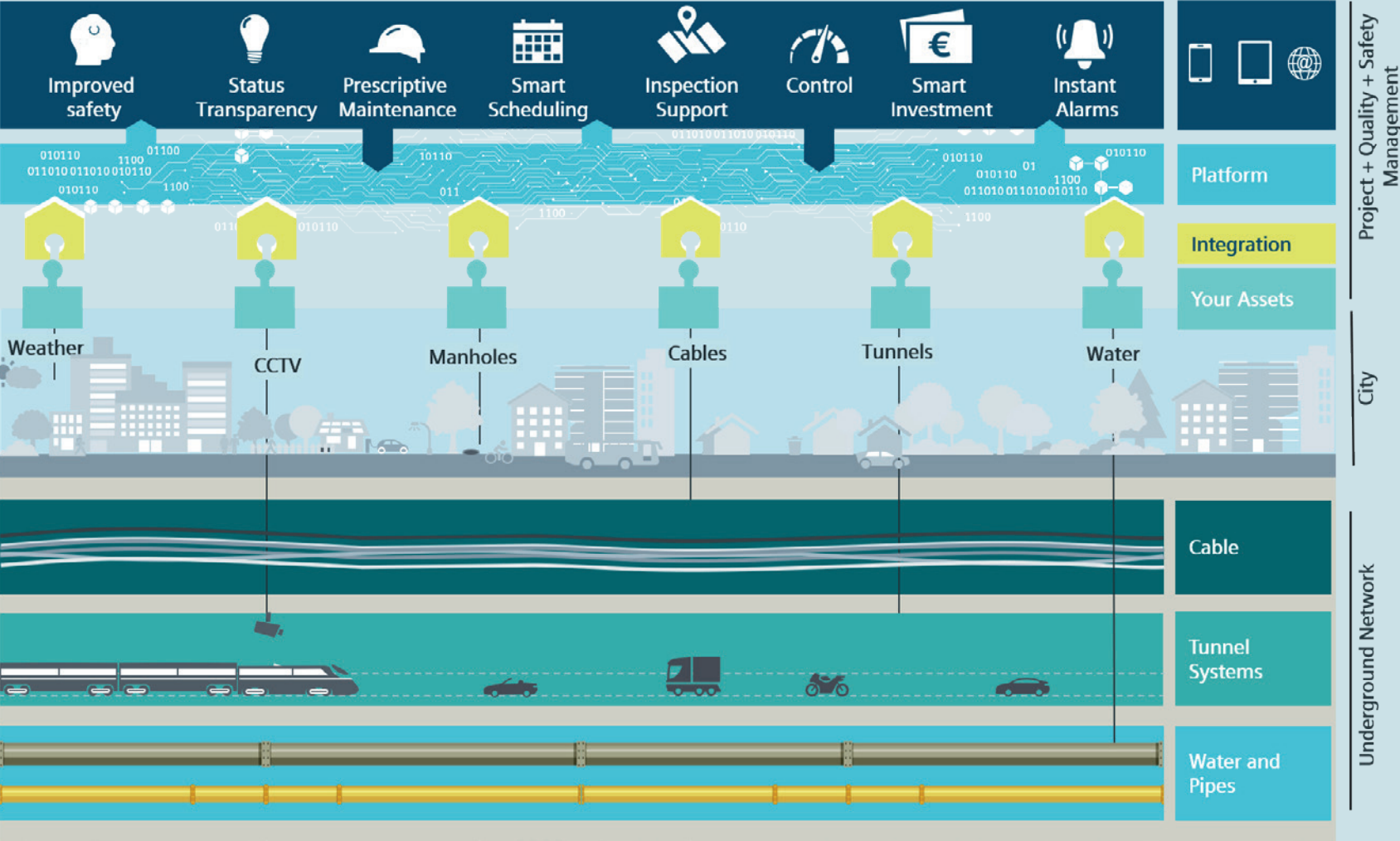


# Underground Network

Life in today’s modern cities is characterized by movement, both on the surface and underground. Every day, on the street, thousands of people commute to work, do their daily shopping, and visit friends and family. Meanwhile, underground, the essential machinery that powers modern life hums away. Even though few ever see it, there is a complex nerve system that protects and enables our way of life.

Cities maintain an extensive network of infrastructure, including an array of electrical wires, natural gas pipelines, water systems, and other vital infrastructure. We all depend on these networks to function – without restriction or interruption – and they therefore must be constantly monitored and maintained, so that we can all live safe and prosperous lives.

## Our solution



These control and maintenance operations can be optimized using developing technologies, enabling early detection, quick remedy, and comprehensive incident prevention. Minimizing underground incidents increases the quality of life, safety, and well-being of each citizen – while saving time, increasing reliability, and reducing costs.

At Siemens IoT Services, we bring together the necessary skillsets to implement state-of-the-art underground network solutions. Our team is comprised of top experts in the Energy, Mobility, Building Technologies, Automation, and Digitalization sectors, and our experience allows us to provide end-to-end IoT Solutions. The combination of our technical expertise and unique domain know-how empowers our deep insights into the increasingly complex and interconnected urban environment, and to develop tailor-made solutions based on our client’s individual challenges.

# We provide customized IOT solutions for all utility providers managing underground assets. Here are some asset-specific solutions:

## Manhole Monitoring

Various naturally occurring and normal phenomena combined...

- electrical service boxes and natural gas pipelines are located under manholes
- winter salting of roads produces electrically conductive and corrosive saltwater
- wear and tear in the harsh underground environment can result in frayed cables, exposed wires, and leaking pipes

... can electrify the manhole cover and, at worst, cause an explosion.

For our customers, we can install sensors to remotely monitor the condition of underground assets, collect data, and integrate it with existing utility systems. We also implement sophisticated analytics algorithms that can enable predictive maintenance, provide early warning indicators that dangerous conditions are developing, and enable physical inspection and repair of malfunctioning assets prior to catastrophic system failures.

Reduce risk of manhole explosions

Manage assets more efficiently

Optimize OpEx & CapEx



## Underground Cable Analytics

Cable failure is caused by...

- cable overloads
- moisture in insulation material
- weather and environmental influences
- wildlife nesting in or gnawing through lines
- construction work or repair activities

... which can lead to power outages, leading to high costs!

We analyze cables based on already available data - using sophisticated data analytics and Machine Learning algorithms - to reduce cable outages by a factor of 10. This lowers maintenance and repair costs and can increase asset lifetime by more than 10 years. As a result, our customers can shift their investments away from regular inspections and scheduled maintenance, focusing instead only on the repair and replacement efforts of cables and other underground assets that have a high likelihood of failure.

Reduce risk of cable failure

Manage assets more efficiently

Optimize Investments

