Smart cities require a smart approach to technology. With connected technologies in the fields of transportation, buildings, security and smart grids, cities can establish a more intelligent infrastructure while improving their sustainability. The Siemens Building Technologies Division is leading the industry, serving as a technology partner, service provider, and system integrator to help make America’s buildings and infrastructure safe, secure, and energy efficient.

Digital Transformation of Buildings

Siemens is bringing two key concepts together — Automation and Digitalization — to enable the “digital transformation of buildings.” The company’s digital strategy is designed to meet customers’ evolving needs and is based on an ecosystem of connected devices, systems, and buildings that are designed to maximize the potential of the building environment. The goal is to not only connect buildings, but to collect, store, and analyze data to help customers better run their buildings, reduce downtime, and maximize energy and operational efficiencies.

Although building technologies have been around for a while, the way they are used is changing. Today, a building operator can use a cloud-based application to prioritize, based on predictive information, when things need to be changed or serviced within various building automation systems. The operator can also remotely access a building system application to get a real-time view of the same system in operation. Not only can these insights prove to be huge money and time savers, they also allow customers to be even more effective at what they do — be it conducting business, teaching young minds, or safeguarding lives.
Moving Buildings to the Next Level

Connectivity will become even more important in the years ahead, with an estimated 25 billion connected devices in use by 2020. In the coming years, business IP traffic is predicted to grow at a significant rate, with mobile computing expected to more than double. This is not a trend — it is the evolution of technology — and it requires the industry to look at how best to connect building systems to drive more value for the customer.

To further support the customers' evolving needs, Siemens has established its Intelligent Infrastructure Solutions concept, or “I2S.” This customer-centric approach centers around three core components: an integrated building management system (IBMS), Advanced Analytics, and Digital Services.

The foundation of Siemens’ I2S approach is IBMS technology — a smart, robust, and open platform to connect disparate building systems such as HVAC, fire, security, lighting, and more to enable smart building command, control, and communication. Advanced Analytics, using a platform like the Siemens Navigator, help monitor energy consumption, system performance, energy supply, and other components that go into optimizing building performance. These systems can work together to help increase building productivity and efficiency while reducing downtime and labor costs. To further support these efforts, Siemens has established a BT Americas Digital Service Center in Austin, Texas.

A cutting-edge example of the I2S concept is under construction now. Siemens is the technology partner and infrastructure provider for Sterling Ranch, located on 3,400 acres in Colorado. Once it’s fully developed, the sustainable, mixed-use, master-planned community will be home to 12,050 housing units, two-three million square feet of commercial space, and more than one million square feet of institutional space. Siemens will combine a comprehensive command control and communication solution for building infrastructure; data-driven intelligence and advanced facility-related analytics; and regular service of all components throughout the buildings' and infrastructure’s lifecycle.
Journey to Autonomous Buildings

The ultimate goal is to eventually reach a systems-balanced approach that will result in autonomous buildings. With autonomous buildings, customers will be able to not only reduce energy consumption, downtime, and staff levels, but also provide service on demand and rules-based performance management.

Customers already expect instant, round-the-clock access to application-based, easy-to-use information, and sophisticated mobile computing. Data is being used to drive and customize building performance and advances in analytics are changing how building owners and operators approach building management — moving away from reactive and preventative behavior and more towards a predictive and proactive mindset.

In the future, building operators will be able to combine building performance and occupant usage data with complex analytics, operators to manage buildings in a way that predicts how they act and interact with occupants. For example, buildings will be able to predict the right temperature set point, based on calendar and weather data. Or, buildings will be able to anticipate security needs based on historical trends, data and predictive movements of a building’s occupants.

This journey towards autonomous buildings will help create the perfect place for allowing occupants to spend less time and resources running buildings and more on creating new medications, healing patients, making residents comfortable, or teaching the next generation of leaders.

For more information: www.usa.siemens.com/innovationUS

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1 McKinsey report - June, 2015