JOURNEY TO A SMART HEALTHCARE CAMPUS

The University of Tennessee Health Science Center

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Since 1911, the University of Tennessee Health Science Center (UTHSC) has been educating healthcare professionals, advancing disease research, and providing primary and specialty healthcare to the greater Memphis community.

The UTHSC campus spans nearly 80 buildings, many of which are about 60 years old with building systems of similar age. The university, under the guidance of Dr. Kennard Brown, Executive Vice Chancellor, and COO, has embarked on a mission: to transform the UTHSC campus environment into one that enables better learning, excellence in healthcare, and optimal research environments.

This evolutionary mission, however, required a different way of approaching campus facilities. According to Dr. Brown, “We are trying to realize the vision, which describes an evolution from an incidental campus— meaning this compilation of buildings that happened to be geographically near each other—to a very intentional, deliberate institution, where everything we do is predicated on clearly defined strategy comprising the components and facilities representative of a top-tier academic medical center.”

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With support for approximately $400 million of capital construction from the Tennessee state legislature, UTHSC sought a partner to help turn their vision mission into reality.

Ultimately, UTHSC selected Siemens to plan and implement with a state-of-the-art emergency operations center, which would serve as the nucleus of the campus-wide security improvements, as well as to address deferred maintenance and building systems upgrades through an energy savings performance contract.

Dr. Brown explains, "What we told Siemens from our very first discussion was this: 'We want a partner organization with the technical capabilities and capacity to assist us with everything. We need integration across our security and building systems platforms.' And when we asked the questions, Siemens answered definitively: 'Yes. We can do that.' And they embraced the opportunity to partner with us."

Enhancing campus security

The first order of business was to create a safer, more secure campus; thus, the first two phases of work with Siemens involved a tall order: SiPass® integrated Access Control, for allowing authorized persons to move through the buildings while keeping unauthorized persons out, and Siveillance™ Video, a powerful video management platform. Together, these technologies involved installing components and capabilities covering:

- 3,500+ new cameras
- 500+ access control doors
- 3,000 wireless door locks
- Video analytics
- People counting

Enabling research and study

Creating a more secure environment was only the beginning of their campus transformation. The next phase at UTHSC was to address the campus's aging infrastructure. "We have a huge enterprise," says Dr. Brown, "with 60-80 buildings, mechanical systems, and other complex technologies. Preventive maintenance is the greatest expense for a campus. We have buildings that are 50-60 years old, and they're running on a lot of old systems." From there, Siemens and UTHSC turned their attention to the academic facilities, then to the research facilities, and finally to administrative spaces.

From central utilities and HVAC to lighting and water conservation, the organizations worked together to not only conserve energy and resources, but to update the campus environment in such a way that would help attract the highest-caliber students, faculty, and medical researchers. "You cannot have a robust research enterprise—you'll never compete in the top-tier of institutions—without new research facilities," says Dr. Brown, who goes on to say that "the building and the entire campus environment are

significant pieces of the equation; they are critically important to the people who work in them, helping people be as successful as they can be."

Laying the foundation for smart building technologies

While UTHSC recognizes the importance of retrofitting the existing buildings to update campus infrastructure, Dr. Brown has his eye on the future of building technologies, and how they'll evolve to create a smart campus. "Part of our challenge is that we don't have enough people to go around to every building and manually make adjustments. But having buildings that are autonomous and learn for themselves is where we're headed; the technologies will be able to do these things for us," he notes.

> "There's no way we could have done this project otherwise, and no way the institution gets to where it wants to be without this kind of intervention and the commitment of a partner who's willing to put some skin in the game."

In future phases, UTHSC will explore smart technologies such as integrated management systems, remote analytics, and space optimization, as well as microgrid technologies that will boost the school's energy resilience.

Finding the right partner for campus transformation

A phased approach to campus transformation at UTHSC has meant that improvements can be designed and implemented around the UTHSC's master plan and budget, while enriching the campus with living laboratories, student engagement opportunities, and showcase sustainability. "We have formulated a $30 million project with Siemens. Through this approach, Siemens updates our building systems to optimize energy efficiency. Program payments are then based on the energy savings we achieve as a result of the work Siemens has done on our campus," says Dr. Brown. "There's no way we could have done this project otherwise, and no way the institution gets to where it wants to be without this kind of intervention and the commitment of a partner who's willing to put some skin in the game."

UTHSC explains that the partnership with Siemens has been critical for the university, and Dr. Brown credits the Siemens team for their ability to listen and adapt while helping the school achieve its objectives. "It's an enviable position for us to be in to have the partnership of an enterprise such as Siemens who is helping us realize our vision."

He concludes: "I would encourage anybody who runs this kind of an institution and who's embarking on this kind of a mission to find the right partner."

By taking the right steps today, we are transforming our educational infrastructure so that it's smarter, safer, more sustainable, and more resilient – all of which can also translate into enhanced efficiency, comfort, improved health and safety, and even lower cost of operations.

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