

Digital Campus Maps

Emerging Trends
Transforming
Higher Education
Navigation

The logo for vicinia, featuring the word "vicinia" in a lowercase, sans-serif font. Above the letters "i", "c", and "i" are three colored dots: blue, red, and yellow respectively. The logo is enclosed in a white circle with a blue border.

What are Digital Campus Maps?

Digital campus maps are digital representations of physical buildings, spaces, roads, infrastructure, and assets that make up an institution. If a structure or service becomes part of the fixture of a campus, its inclusion in the digital map will facilitate navigation.

The difference between digital campus maps and flat pdf maps

Maps have guided humans around the world for centuries. Those with the talent to decipher complex routes from rare paper maps were the toast of their time. Printing and the Internet have democratized maps, making them available on paper, pdf, and 2D versions. Still, **map reading isn't for everyone.**

But what if the map reads you!

That's exactly what digital campus maps do, **providing real-time data about your location in relation to your position in the natural environment.** All you have to do is follow.

Why navigation has become imperative

It will take days to walk through some of today's vast university campuses. **These campuses span a vast network of buildings, indoor facilities, halls, restaurants, businesses, cultural activities, and services** that contribute to the varsity experience.

This is hard even for old students, so imagine the nightmare it can present for sophomores going through orientation or visitors pressed for time.

Digital maps act as functional tools as well as aesthetic facilitators. Higher education is catching up with the trends and using them to good effect.

Another important feature of digital maps is their ability to incorporate technologies like **Artificial Intelligence (AI)**, **Internet of Things (IoT)**, wireless technology like **WIFI** and **Bluetooth**, **Virtual Reality (VR)**, and **Augmented Reality (AR)** to provide a seamless experience for staff, students, researchers, and one-time visitors. Synced with digital twins or virtual campus replicas, vast university campuses and their surroundings become accessible.



● Digital Campus Map uses

● The increasing use of artificial intelligence (AI)

AI's ability to gather, process, analyze, and deploy data for immediate use has seen it employed by higher institutions to ease navigation around campuses. AI also uses this information to drive qualitative results by **assisting staff in administrative tasks and improving student services.**

Armed with up-to-date information provided by AI chatbots, **universities can provide relevant answers to routine student questions, making campus navigation more efficient.**

Corporations like Google and Samsung are leading the way in this domain, but universities like the University of Miami are embracing XR (extended reality) glasses and headsets to simulate activities around their campus.

● Internet of Things (IoT)

Adding sensors and software to physical objects, and making them connect wirelessly to each other through the Internet, Bluetooth, WIFI, and other wireless devices creates an Internet of Things. Such a system unifies different departments of higher education campuses into a single unit inside which important assets can be tracked and managed remotely. This makes a campus run more efficiently, minimizing waste.

A unified system also improves security. Qassim University in Saudi Arabia uses IoT to connect 6000 cameras and sensors, helping them monitor their campus in real-time.

● Digital Campus Map uses

● Using Digital Twin Technology as a management device

Imagine taking a tape to a site every time administrative staff wanted to know the distance between two points on campus. Or sending an email every time a faculty head wanted to know the number of students who attended a history class.

Creating a digital replica of a university campus solves these problems. Administrators can access and digitally take that measurement with a few clicks. Software can provide instant reports on how spaces are allocated and used.

Knowing which building is empty, what space is full on weekdays, and what distance students have to walk to the canteen **will improve campus life. Movement around campus can also be personalized for people attending back-to-back lectures. Making indoor navigation accessible to wheelchair users by showing them routes with ramps will help them avoid stairs and make the campus more inclusive.**

Cambridge University's campus navigation system shows students accessible routes, available bathrooms, steep climbs, and ramps for wheelchair users.



● Digital Campus Map uses

● Augmented Reality (AR) and Virtual Reality (VR)

Prospective students don't have to imagine or travel long distances to experience a campus. Schools are now helping them get a feel of their future campus through augmented reality and virtual reality. Augmented reality projects the digital campus onto the potential recruit's physical space, **helping them interact with the new environment and learn things on their own.**

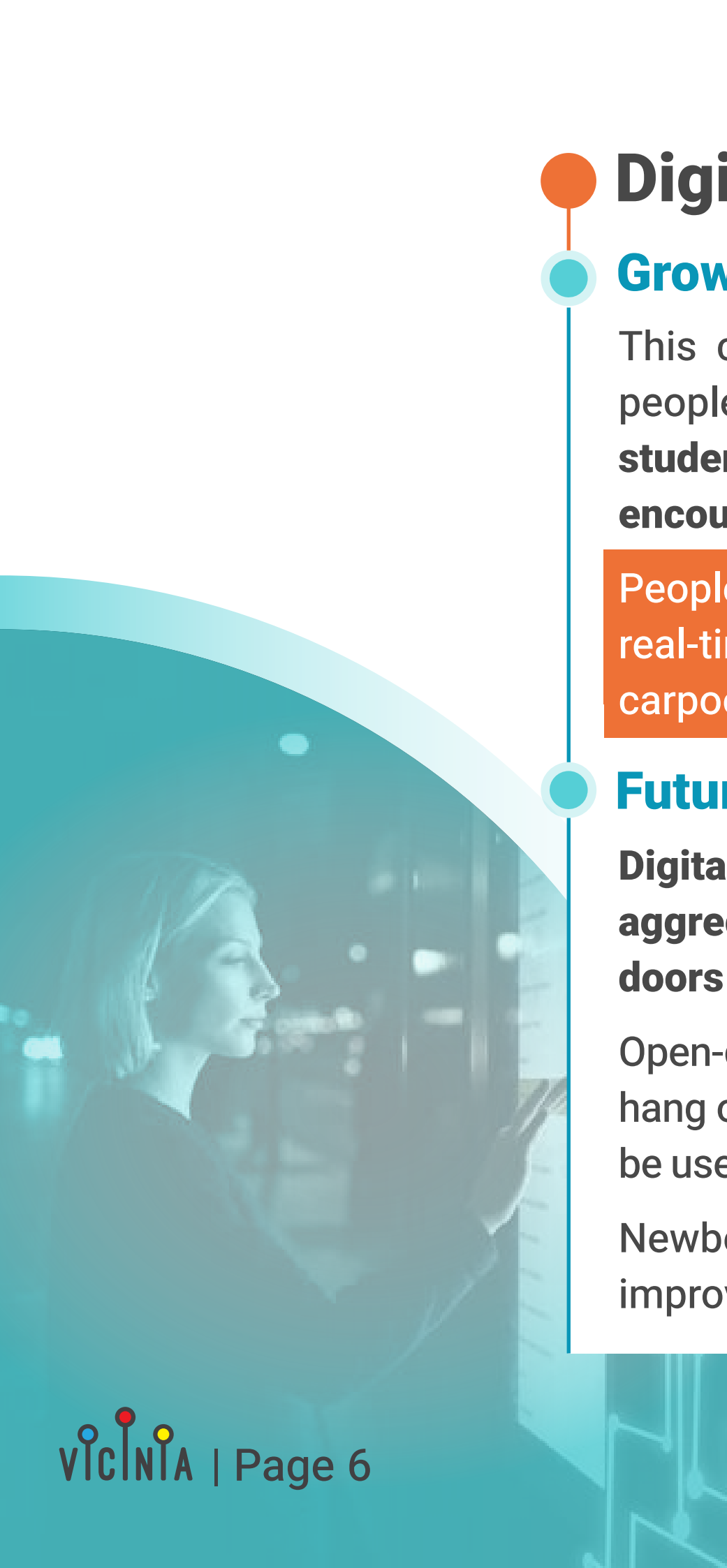
With virtual reality, the simulation is completely digital. Both AR and VR provide easy introduction into campus life, and are being enhanced through sounds and activities that almost feel real. **Students can point at a building and be served with instant information about its history and the events scheduled to take place in it.** Once admitted, AR and VR ease research by guiding students and lecturers through libraries.

Universities are now teaching long-distance courses using AR and VR. Harvard uses AR and VR to help teachers practice lessons before they enter the classroom. The technology is also used for distance learning, expanding their global reach.

● Growing number of green campuses

Many of the applications of digital campus maps focus on performing tasks within optimum time while providing the best experiences. In doing so, they reduce the strain on resources like energy and water. This contributes towards building green campuses that minimize the university's carbon footprint.





● Digital Campus Map uses

● Growing number of green campuses

This can be done by monitoring how much assets consume energy and how people navigate about campus. The interactive nature of digital campuses means **students and staff can be informed about their environmental impact in real-time, encouraging them to take routes that minimize damage on the planet.**

People are more likely to use cycling and walking paths when shown this data in real-time. University of California Berkeley's digital navigation system helps people carpool and access parking lots faster, reducing traffic and energy consumption.

● Future-proofing with AI and data analytics

Digitally mapped campuses provide even more depth when insights and data are aggregated over months and years. When crunched, compounding data opens wide doors into the future.

Open-day crowds, March Madness attendance, how families arrive and where they hang out on the first day of school, and orientation are just some of the data that can be used to manage overcrowding and provide better experiences years down the line.

Newberry College in South Carolina uses data to plan future infrastructure improvements that include energy conservation in its buildings.

Higher education's future in seamless navigation



Conclusion

The campus of the future will no doubt aim to provide a stellar education. **It's increasingly evident that the path to academic excellence can't be separated from how students and staff move, interact with each other and their environment, and access knowledge.**

Artificial Intelligence (AI), Internet of Things (IoT), wireless technology, Virtual Reality (VR) and Augmented Reality (AR) are all going to play a part in that transformation. **It's just about time** to dip your toes in as more and more institutes of higher learning race to make it a central part of their planning.

Tried and tested systems like Vicinia's campus navigation software make it easy **to build a digital twin of your campus and let users access real-time information on the goings-on around them.**

Vicinia is a digital innovations company that provides software and IoT solutions enabling location-based services in a smart enterprise. Our vision is to empower the digital twin of world-class organizations centered around people.



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