WHY LEGACY TECHNOLOGY IS NOT AN OPTION FOR EDUCATION INSTITUTIONS ANYMORE

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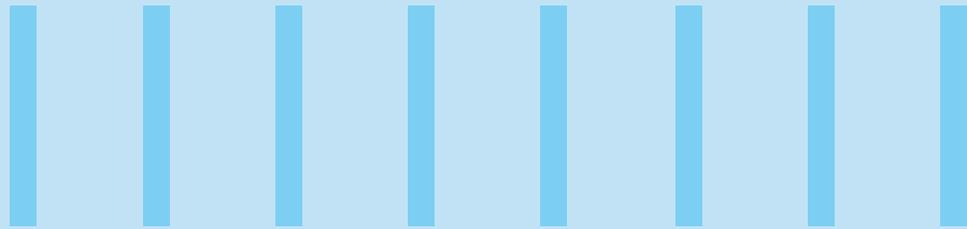
The education industry is undergoing significant transformation. With the popularity of video platforms such as YouTube, and massive open online courses (MOOC), the number of students in the classroom is declining. Education is becoming a multi-dimensional and pervasive opportunity, and open to people of all age, geography, education level, socioeconomic strata, and gender. The definition of the 'student' is changing, and now this ever-expanding, diverse group expects anytime, anywhere, and lifelong learning.

In this age of hyper-personal, imaginative, empathetic, and on-demand learning, education institutions that have historically grabbed every opportunity to evolve have yet another opportunity to reinvent their relevance - upgrade their facilities, student management processes, and stakeholder engagement systems - through digitalization.

> "We cannot nurture a new generation of business leaders and innovators unless we're constantly innovating ourselves."
>
> Prof. Zhiwen Yin,
> *Associate Dean of Fudan School of Management*

Spurring learning with smart technologies

Education institutions eager to align with the times and initiate their digital transformation journey will need to upgrade their technology infrastructure by adopting a comprehensive Agile Digital services architecture that revolves around five prongs, namely, Insight, Innovate, Accelerate, Assure, and Experience.

Artificial intelligence, advanced analytics, and big data will provide education institutions with much-needed insights. Innovation will come from deploying industry-specific platforms, IoT, and digital product engineering. Solutions being developed will be accelerated with API, Cloud migration, RPA, and IT automation. Educational institutions can modernize legacy applications to extract more value from them and integrate digital systems for simplified access. Assurance on solutions will come from cyber security and specialized validations, and the agile architecture will culminate with a seamless experience. These five prongs of the Agile Digital services architecture will enable schools, colleges, and universities to offer personalized content, digital marketing and omnichannel solutions to students.

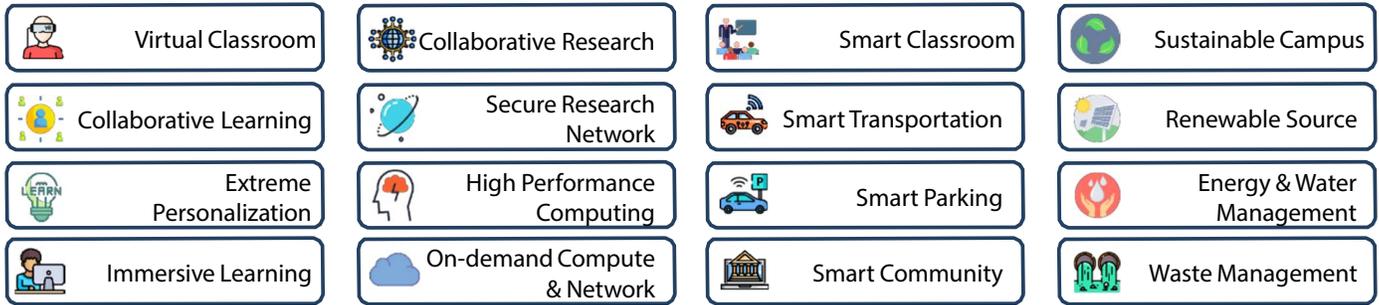## Expanding access and fostering learning with smart solutions

As an increasing number of students seek to capitalize on the benefits of technology, the education industry will experience a strong push to launch solutions that not only accommodate the learning differences among students but empower the education enterprise with actionable insights as well.

- Students generate data at every touchpoint and technology allows the education institution to map this data and create a genome of each student. This Student Genome solution enables a school, college, or university to access a 360-degree, unified view of the student from admission to learning, development, placement, and administrative engagement by employing data and analytics. The Student Genome can improve outcomes through personalized inputs to students and faculty. It can also help the institution increase retention rates.

- Another solution could be around the innovative creation and delivery of content. For instance, by going beyond the usual method and leveraging crowdsourced, peer-reviewed and certified content that is delivered through virtual reality, augmented reality, and mixed reality, and AI-powered virtual tutors. Live videos and mobile apps could also facilitate gamification or real-time collaboration. Delivery of this content could be personalized to the individual students' consumption pattern. Students can access a note-taking portal that records key information. Sensors could track student engagement and assess through AI. Institutions could align student experience and their learning to career goals and machine learning could suggest courses and predict success according to student performance, learning preferences, faculty style, and career goals. Retention rate and progress of students can also be tracked using AI.

- Another tech solution could be a comprehensive mobile app. This can accelerate convenient, always accessible learning and enable round the clock guidance and support. Gamification of learning through an app can make it collaborative. The app can also blend learning models such as instructor-led, assisted, and self-learning. Content can be real-time, dynamic, and delivered byte sized based on an individual's response.

- There are a number of areas in an education institution that are being managed as silos, from transport to teaching, learners to the library, and buildings to backend processes. Smart technology could integrate these systems and processes to create a smart campus. This AI, IoT, other methods of automation and digitalization could power the solution. The desired outcome for education institutions would be to access data for insights and informed decision-making, improve transparency, enhance safety, monitor risk, and automate compliance and enhance productivity.

Virtual Classroom	Collaborative Research	Smart Classroom	Sustainable Campus
Collaborative Learning	Secure Research Network	Smart Transportation	Renewable Source
Extreme Personalization	High Performance Computing	Smart Parking	Energy & Water Management
Immersive Learning	On-demand Compute & Network	Smart Community	Waste Management

Next generation infrastructure

A case in point is the Infosys smart campus in India. Also the world's largest private university. Here the solution connects all the systems from the library to the auditorium and everything in between to facilitate collaboration among students and faculty.

## A glimpse into the array of emerging technologies that can be adopted

Education solutions can be built on an expanding framework of robust technologies. One of the early technologies education institutions can adopt to digitalize physical spaces is IoT. Sensors, gateways, and smart connected equipment can power IoT across the physical infrastructure and spaces on the campus. Next, is the retrofitting of sensors and integrating existing infrastructure into a Command Center for centralized smart campus operations. Augmented data analytics with a digital twin of the smart campus and AI can offer an education institution insights that optimize resources, reduce wastage, and enable saving.

Educational institutions can also deploy adaptive connectivity infrastructure with 5G, and adopt a wireless sensor network for IoT devices, a high-speed optic fiber for wired LAN and mmWave backhaul network. Software-defined networking (SDN) can enable core network orchestration. MPLS network could meet security and stringent QoS needs. An SDWAN network can be deployed for non-critical and on-demand in-campus and off-campus network requirements and streaming network telemetry with augmented analytics. This can enable the monitoring and resolution of applications and network issues. SDN could also enable cloud-first strategy for network and business apps.

Anytime anywhere education via instant messaging, peer-to-peer calling, collaboration from any device for content share, and a seamless group experience across devices and channels can be achieved through cloud-based unified communication. Here, unified communication infrastructure can be cloud-first and mobile-first. It could support smart boards, virtual classrooms, and advanced telepresence. However, adopting the right mix of technologies, scaling legacy system, creating solutions, and managing this infrastructure can be a complex task. Powered by this infrastructure, API based and microservices based solutions can be quickly developed using techniques such as Agile and DevOps.
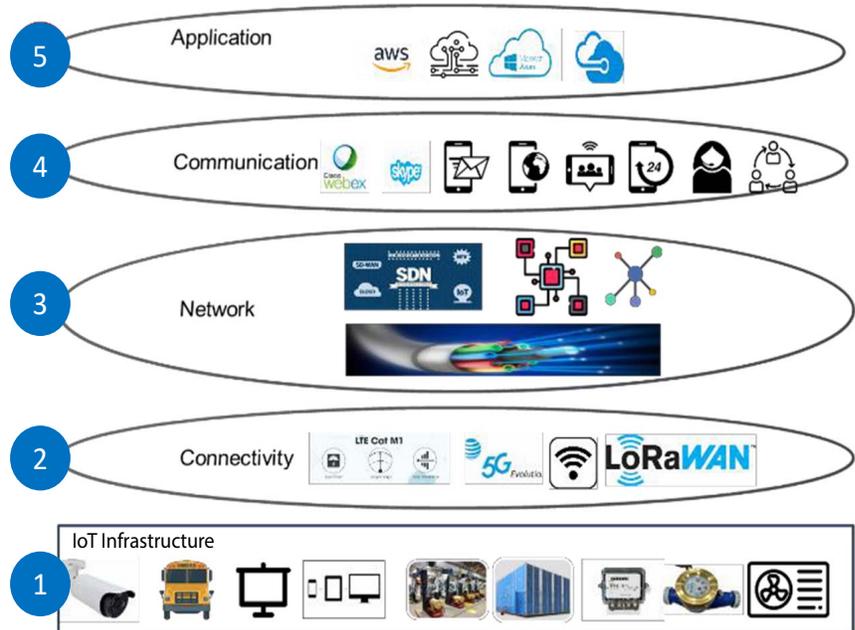
Transform your infrastructure with layered architecture

Transforming into a next-generation education institution with the right innovation partner

While educationalists continue to lead institutions of learning, they can ensure their digital transformation with the right innovation partner. Particularly one that has proved its mettle by already developing extensive, agile and responsive solutions. The right innovation partner adopts a human-centric approach to technology, adopts design thinking to locate pain points of the stakeholders before offering a solution. Instead of plastering completely new solutions, it offers sustainable innovation, squeezing more life out of legacy applications and fusing legacy with modern technology.

For instance, recently, Infosys helped a unified school district stabilize and improve the performance of their integrated Student Information System (SIS) application by setting up an Application Managed Services solution. The integrated SIS was on a legacy platform. It took weeks to generate reports and was slow and unfriendly to the needs of today. Infosys helped the unified school district transition to a new smart solution with minimal disruption. This significantly improved the customer's user-experience and enabled access to a stable well-managed system which was safer, easier to maintain and flexible. At deployment, the integrated SIS was able to capitalize on proven best practices, tools, and accelerators. After the deployment of the Application Managed Services solution, Infosys went on to offer the unified school district a business intelligence solution to visualize attendance.

Infosys has also offered the University of Nottingham similar managed services for their Oracle-powered student management system. The solution provides a single platform for student services across the University's campuses in the UK, China, and Malaysia ranging from admissions to administration and financial management systems.

Conclusion

As the traditional definition of the 'student' undergoes change, educational institutions will need to change the way they create and deliver content, and assess and engage their students. The new bottom line will be lifelong learning that is personalized and collaborative and only new technologies can ensure the education institutions stay on top on the learning curve. Legacy systems will be unable to keep up with the new requirements for data analytics, agility, and preemptive suggestions. With a focus on outcomes, institutions will benefit deeply from transitioning to newer emerging technologies. Contact us should you wish to begin a conversation on how to navigate a digital transformation for your enterprise.

About the author

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Mitrankur (Mit) Majumdar is a strategic business leader, specializing in executing business transformation through IT and processes. At Infosys, Mit plays an important role in positioning Infosys as a global systems integrator across information services, publishing, professional services, education, internet technologies and travel and hospitality practices. With over 20 years of experience in consulting and outsourcing, Mit has extensive experience in incubating and developing market share in media and communications, telecom, wireless, cable and satellite industry segments.

Mit holds a bachelor of engineering degree in electronics and telecommunication and an MBA from McCombs Schools of Business, University of Texas.

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