

Part III - Acceleration

THE NEXT BIG LEAP IN HIGHER EDUCATION

Sentience and AI To Scale
the Next Normal

Thirumala Arohi Mamunooru



“

If we teach today's students as we taught yesterday, we rob them of tomorrow. ”

- John Dewey

The current crisis has exposed the shortcomings of educational institutes in terms of delivering on e-learning, offering skill training, technical certifications and micro-credentials. As companies shift towards skill-based hiring rather than degrees, these institutions will have to make a strategic digital transformation to remain relevant.

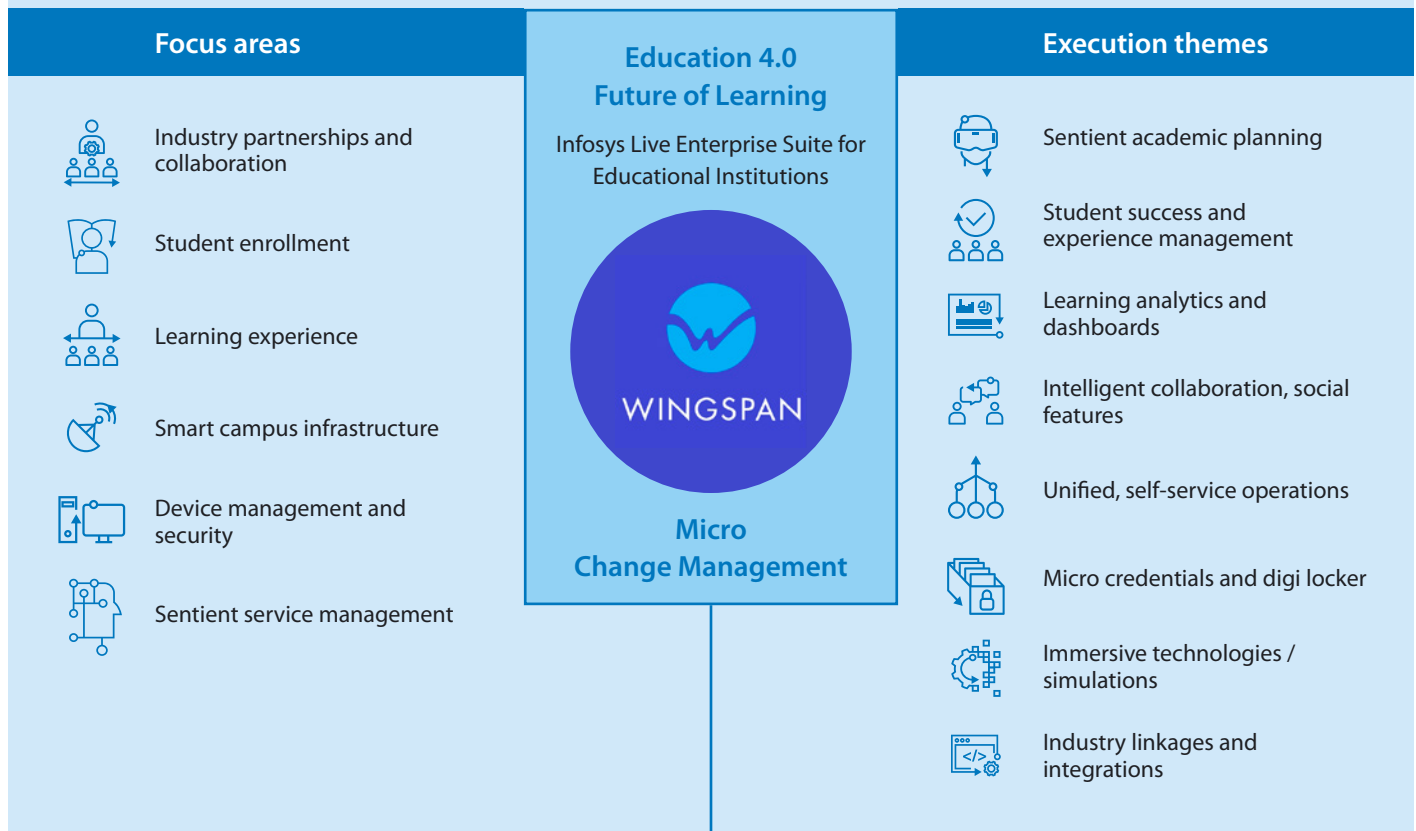
The modern educational institute will become a platform that distributes the ability to teach and learn, using artificial

intelligence and IoT-based analytics. It will enrich every aspect of operations for all stakeholders, whether that's driving enrolments, simplifying administration, improving retention, adding business value, or facilitating unlimited learning.



Our View on Focus Areas for Higher Education Institutions

Education 4.0 has gravitated towards personalized, collaborative, adaptive and experiential practices while facilitating unlimited learning and a strong business case for universities by increasing enrolment and retention rates



Where Sentience and AI Can Deliver: Building a Foundation That Enhances Every Institutional Operation

1

Student Enrolment + Student / Faculty Onboarding

Eases workflows through the convenience of intelligent automation

The enrolment experience can be more holistic and personalized with intelligent digitization, seamless aggregation of student information, and integration with past data. Even onboarding of new teaching and administrative staff can be automated, with a significant chunk of induction and paperwork done online.

2

Learning Experience Platform

Facilitates a single-point, seamless learning ecosystem

The time is now for academic institutions to adopt a unified point of entry to all the learning ecosystems, by seamless integration with all the different existing systems. This can help improve learning experiences and increase effectiveness of the coursework, while simplifying and managing the underlying technologies and processes.

3

Smart Campus Infrastructure

Smooth integration of physical campus with digital campus

As students, faculty and staff return to campuses, it is important to integrate the physical campus infrastructure with smart options to improve their experience. The focus, to promote:

- Dynamic collaboration and engagement

- Intelligent and automated data capture from the campus infrastructure
- Effective operations, using technology and automation
- Digital adoption that enables seamless switching between physical and virtual models
- Reusability with flexible infrastructure
- Real-time decision making based on the automated insights and dashboards

The integration of these digital and physical worlds will typically involve a host of technologies such as Wi-fi, 5G infrastructure, IoT, Digital Twins, AI/ML-driven dashboards, collapsible classrooms that convert to practice labs, Raspberry Pi kind of compact devices with content ported on it, digital attendance capture, and other elements of smart classrooms such as recording sessions for future / repeat play and interactive quizzes. In fact, if there is a greater adoption of cloud solutions, then the restrictions currently faced due to device compatibility will be sorted with adequate (built-in) data privacy controls.

4

Device Management and Security

Fortifies smart campus infrastructure, protects against attacks

Connectivity is the key to educational continuity in the digital world. The pandemic has certainly demonstrated the need for properly connected smart (personal) devices for an optimum learning experience. Of course, as the use of devices for e-learning rose, so did cybersecurity attacks. This tells us that security protocols and authentication mechanisms of personal devices are more important than ever.

Remote learning is here to stay. So robust device management and security protocols are extremely crucial for the deployment of the learning experience platform and fortifying the smart campus infrastructure.

5

Sentient Service Management

Predictive, intuitive delivery of services to all stakeholders

We should take inspiration from the proactive steps taken by many consumer-centric organizations to engage and service the customer. They pre-empt the needs of the consumer and are able to suggest the correct course of action right from a refill to an upgrade. This is all on the basis of telemetry and big data: sentient service management in action.

This approach will make it extremely easy for academic institutions to manage the expectations of all the key stakeholders. The knowledge of issues faced by students, related to learning, or other aspects like finances, library, lab or other campus facility issues, courtesy a post on a discussion board, a rating awarded to an activity, or absence from some effort, are markers to start a conversation through the self-service functionality.



The way to move forward in implementing this is identifying the strategic execution themes that demand priority attention and seeing them through in an agile and iterative format, building on the learnings of each phase along the digital transformation journey. This will deliver perceptive, intuitive and responsive outcomes across the education value chain.

It was in the late 70s, when I first looked at murals as a form of art. A few people were seriously fascinated by this style, as it was perceived more as an antisocial attitude of some junkies randomly spraying the walls of peripheries than a creative expression.

Fast forward 3 decades, major cities now commit murals to international artists to spread color across boring gray streets. It is the case of Vienna, where one of the founders of the Animal Power Culture from Colombia was hired to spray colorful faces on the walls of the capital. Stinkfish, raised on the streets of Bogota and trained to paint since an early age, burst his murals with powerful tones around a stenciled, centered portrait. His work is inspired by photographs of real people that the artist shoots while travelling around the world. His talent is internationally recognized, and his work is hosted on the streets of Mexico, England, Spain, France, Argentina, China and many other countries.

A more iconographic approach drives the drawings of Rubino, a self-taught artist from Miami. His murals merge dreams and reality, bringing the intense symbolism of ancient myths to contemporary visuals. His work is hosted in

How Sentience and AI Is Operationalized: The Strategic Execution Themes at the Core of Digital Education

1

Sentient Academic Planning

Smart and dynamic designing of course flow

The focus here would be smart planning for the academic year, from the student, faculty and the admin perspectives. This plan would include smart scheduling of sessions, identifying online sessions, pre-reading recommendations from the faculty, etc.

For a student, it would also help to have a view of the complete schedule and manage it with other co-curricular interests.

The faculty would then be able to recommend mentorship slots for some students or batches, and feed into the schedules so that there are no misses or omissions from the key stakeholders.

Analytics pertaining to attendance or assignment completion would also feed into the dynamic scheduling of classes, and maybe even closing out a session for those who are behind on assignment submissions.

The automation element would help the teaching staff by eliminating the manual to digital transliteration of the attendance. In fact, attendance could be gamified to ensure better class participation. Automation can also greatly simplify operations beyond administrative tasks, even enabling customized digital assessments and scheduled interventions to ensure the student is progressing on their learning journey as intended.

2

Student Experience and Success Management

Intelligent methods for increasing retention and participation

With dropping rates of enrolment and the high effort of retaining the enrolled students, the learning experience platform will play out seamlessly to retain them.

The real-time analytics can alert and allow co-learners to celebrate micro successes and major milestones for students. They will have intelligent reminders to help keep track of submissions, assignments and assessments. Their academic records could help bring in personalized incentives, and even financial schemes to help with tuition fees.

Their accolades could be converted into digital badges: instant certificates and badges for social media would make them digital superstars and help make learning cool. The faculty would be able to distribute some teaching opportunities to these students.

Those who are trailing in class could be dragged (virtually) into another breakout room to help them get their concepts clarified, at their pace and without public humiliation. The administrative staff could easily send digital reminders to turn in assignments and allocate them to the respective faculty without any delay. The entire ecosystem could be configured to ensure no student feels left out, and yet doesn't get a sense of unwarranted intrusion.

3

Learning Analytics and Dashboards

Real-time data to drive better decision making

In the pursuit of being a sentient organization, creating the ability for its stakeholders to make intuitively good choices is key. These are enabled by powerful analytics, which not only showcase real-time data, but also render it in clear graphic visualizations to help put the information in perspective and drive meaningful actions.

Academic institutions need to make a host of decisions, constantly. This decision making triggers a flywheel effect, which goes on to enrich the platform with rich data from learners, faculty, and all other stakeholders.

For instance, a professor could decide on an extension for a class, adding new topics, introducing a new elective, inviting new enrolments for an academic activity, or organizing events with industry agencies, with the help of deep analytics. This improves the agility of the institution and ensures success for the decisions made.

Analytics for every stakeholder, be it the student, educator or the administrator, can empower everyone while delivering the promise of personalization.

4

Intelligent Collaboration Apps

Enabling teamwork through open processes

A university's reputation often rests upon research and innovation. For this, collaboration is key. However, it is important to have collaboration apps which complement the learning effort. There are some compelling points in what is termed as the remote-first model advocated by GitLab, such as open sharing of information, asynchronous communication, enabling simultaneous multi-horizon initiatives and driving open collaborative efforts. The applications should be hosted on the learning platform to seamlessly switch between a monologue and a class conversation complete with whiteboarding.

5

Immersive Technologies / Simulations

Using rich media content to enhance learning

Students thrive on rich content experiences in their social and gaming worlds. Here, they are constantly put in unfamiliar environments with new rules and have to figure them out simply by trying new things.

The 3D wave has ushered in the era of AR/VR. These are the perfect technologies to develop rich media content that simulates the lesson and offers multidimensional learning experiences to the students, quite literally. The faculty must be adept at

conceptualizing subject matter content for these environments, as they would foster better understanding and retention of knowledge.

Institutions must explore content partnerships to create content on these lines and also the devices through which this content will be made available to the students. AR / VR gear will have to be procured, or simple cardboard glasses can be recommended to ensure there is no limitation on accessibility.

6

Micro Credentials and Digi Lockers

Empowering students to move between institutions and locations

Mobility is a key issue for new-age learners as many would prefer the option to move if there are better opportunities or environments elsewhere. This makes it imperative for districts and colleges to come together, and offer an interoperability of credentials between different institutions. This will make it possible for learners to continue their studies, wherever they are, as they balance various life needs.

While there has been a traditional emphasis on CGPA, it may be an opportune time to offer micro-credentials. These micro-credentials would not only empower students to move effortlessly between institutions, but also encourage them to invest in courses periodically, and for their professional growth. A digi locker would be a way for them to store their certifications, assignments and progress on coursework, so they don't have to start from scratch when they shift locations and universities.

7

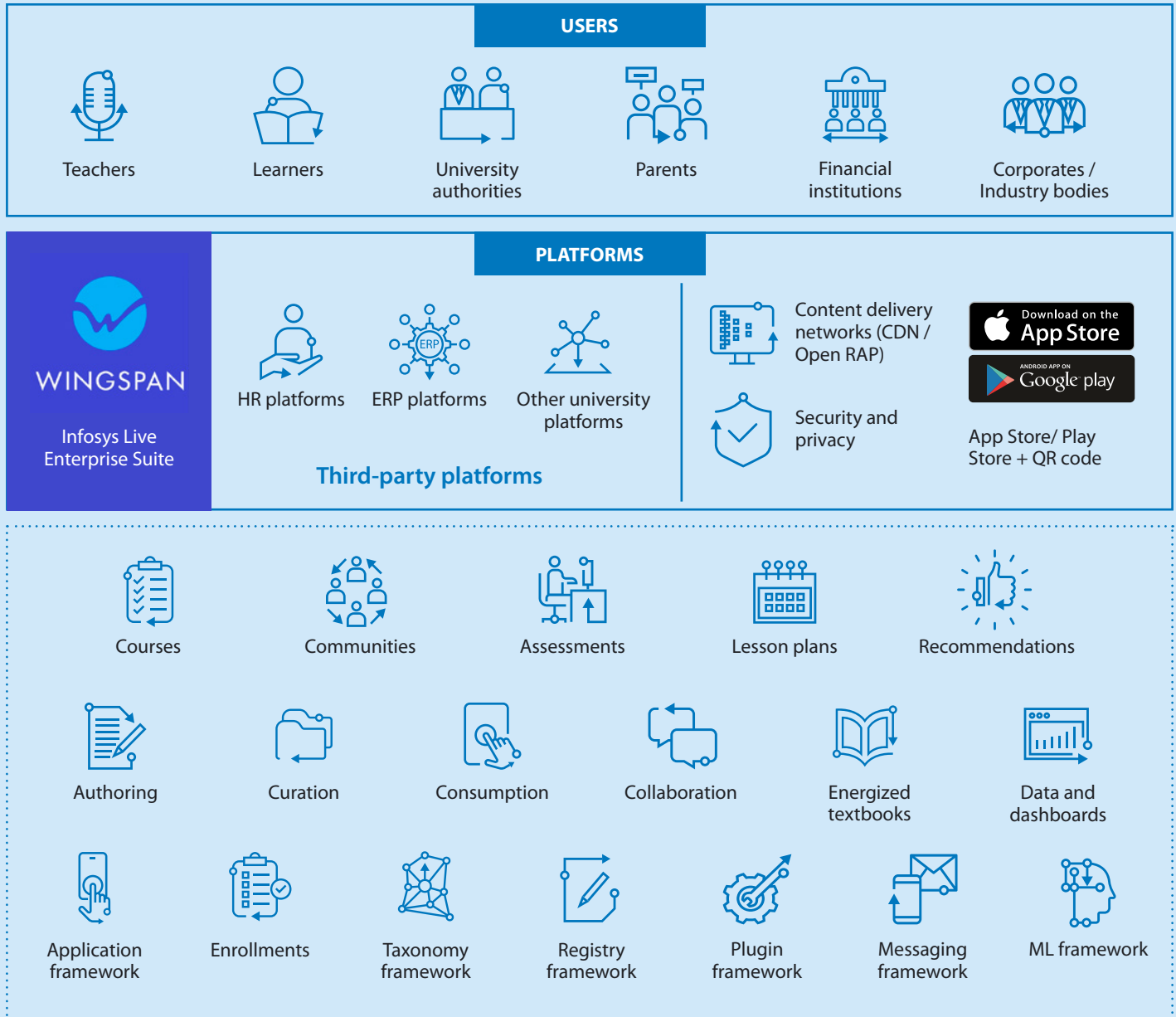
Unified, Self-Service Operations

Providing multiple pathways for solutioning

Earlier, we explored the need for a sentient service management approach. We believe this approach must be especially deployed in areas that universities typically struggle with. Troubleshooting and problem resolution become easier with sentience and AI. The technology pre-empts problems and offers solutions, accessible to all stakeholders. It also measures the efficacy of the fixes applied and weighs out the pros and cons as defined by the involved parties. This allows for the knowledge to be drafted back into the system to make it a very active day-to-day information repository for future queries or needs of other stakeholders.

Now that we understand the executional goals of the sentient academic enterprise, let's look at the constituent elements of the digital platform that will deliver it.

Architecture Blueprint for Digital Learning and Operations for Education 4.0



Built to integrate smoothly with HR, ERP, as well as other university platforms, including third-party platforms, the digital platform at the core will harness modular and scalable content delivery networks like Open RAP. This means support for energized textbooks which are more entertaining, interactive and engaging. It also will contribute to stronger

collaboration, resulting in stronger communities.

The platform will use an array of frameworks such as application framework, taxonomy framework, registry and plugin framework, messaging and ML framework, to be agile and adaptable. They will help the system constantly

improve the university's offerings, be it courses, assessments, lesson plans, recommendations, authoring, curation or consumption. It will tie-in with existing security and privacy protocols to bolster them and be accessible via the App / Play Store or through QR code.



1

For the Student / Learner

How Sentience / AI Serves the Needs of a Student / Learner



The digital platform will offer the student/ learner a customized learning experience powered by real-time analytics and recommendations, including gamified learning and dashboards. They will be empowered to create/curate their self-learning journeys with access to course content across disciplines and learning pathways that link with marketing

opportunities and industry programs. This also means that they will be more job-ready.

The ability to connect with professors, both in person and virtually, along with the ability to perform all operational tasks on digital mode will offer a great deal of convenience, particularly for those

who are currently marginalized by rigid schedules and campus infrastructure. This open learning schedule along with the ability to move in and out of the school, share student creds and earn dual degrees will appeal enormously to the new-age student who does not want to be tied down to one place or area of study.

How Sentience / AI Serves the Needs of a Professor / Educator

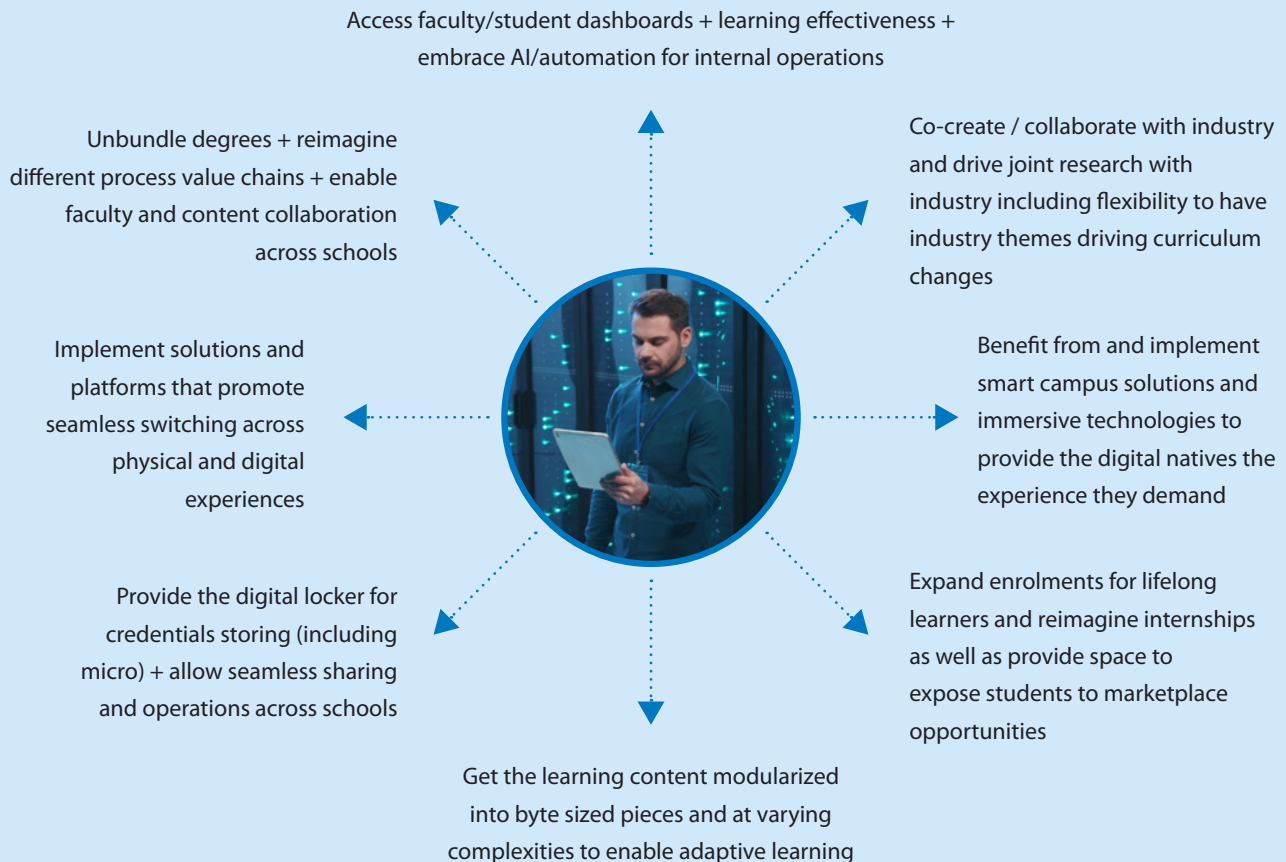


The platform will offer educators the ability to provide personalised and group recommendations and assignments based on real-time analytics. Digital tools allow all experiences to be amalgamated into a shareable knowledge repository, while access to rising industry / technology trends and industry experts

and practitioners enhance the students' learning journeys. Adaptive learning content can be prepared on an accelerated timeline by crowdsourcing and leveraging student data. Interactive and collaborative apps, woven into the learning platform provide students with rich experiences, both physical and virtual. Day-to-day

operations involving students and class management can be automated or simplified. Finally, educators can interact and engage with parents and stakeholders using the personal dashboards and insights.

How Sentience / AI Serves the Needs of an Administrator



With access to faculty and student dashboards, administrators can automate internal operations using AI/automation. They will have the ability to drive co-creation and collaboration with industry and joint research with industry, including curriculum changes based on industry themes. Immersive tech will offer digital natives the rich experiences they seek, and reimagined internships and learning pathways will expand enrolments for lifelong learners. Smart campus

solutions, modularized learning content for adaptive learning, and solutions for seamless switching across physical and digital experiences will further add to the institute's appeal to the new age learner. The digital locker to store credentials and facilitate seamless sharing and operations across schools, coupled with unbundled degrees and reimagined process value chains will offer students the mobility they seek, and facilitate faculty and content collaboration across schools.

There are a multitude of benefits to mobilizing new age options like sentience and AI in order to bridge the digital divide and thrive in the era of disruptions. Infosys Wingspan, part of the Infosys Live Enterprise Suite, has been built to address most of the needs of a digital education ecosystem. Understandably, the prospect of such a radical transformation can seem daunting. However, with Infosys Wingspan, this change is managed in a way that is not destabilizing and sudden.





Micro Change Management: Making Progress One Step at a Time

As educational institutions embark on digital transformation, we advise a 'micro change management' approach. We have been using this approach ourselves at Infosys, in our live enterprise journey. The shifts are instituted bottom up in a micro format – by changing a small element of the routine in the current process (routine +1). And then by providing the right cues/nudges and rewards/recognition to lead to the ultimate behavioural shift and the desired outcomes. This ensures that the delta between the current and incoming systems is never too wide. Thus, this sigma of micro changes helps in bringing about the larger transformation.

The Defining Change in Education Is Happening Now

Many believe that the scales in education's tipping point have tilted towards a transformation that is irreversible. Much like industrialization cast the mould for the educational model of the past, digitization is shaping the narrative of this century's education. The skills vs degrees debate is a big disruption, the pandemic is the catalyst, and an increasingly digital society is the accelerator for a new order. What lies ahead is a future where education can be more enriching, experiential and human. Its promise fundamentally remains unchanged, but the way it delivers the promise keeps changing.

We would like to now ask you to reflect on the points raised in our series on the adoption of digital innovations by academic institutions and invite your commentary on our digital architecture blueprint. How do you believe Wingspan could benefit you? Your opinions and constructive arguments would be much appreciated.

Contact us at
wingspan_marketing@infosys.com

The Author



Thirumala Arohi Mamunooru

Senior Vice President and Head –
Education, Training and Assessments

In his tenure at Infosys, which spans 23+ years, Thirumala Arohi (known as Thiru) has managed many vital client relationships for financial services clients in Europe before taking on the current role of Head of Education, Training and Assessment (ETA). The ETA department is one of the key business enabling departments at Infosys. Thiru drives various learning interventions to enable the workforce to be future-ready.

In this journey of creating next-gen learning experiences, ETA has progressed well in establishing and enhancing digital learning platforms that enable 'anytime, anywhere, on any device' learning. Several partnering agreements are in place with universities and MOOCs like Udacity and Coursera in leveraging their programs. Along with driving content digitally, the learning and development arm of ETA also focuses on developing holistic skills in the areas of business, behavioral and leadership such as design thinking.

Infosys Cobalt is a set of services, solutions and platforms for enterprises to accelerate their cloud journey. It offers over 14,000 cloud assets, over 200 industry cloud solution blueprints and a thriving community of cloud business and technology practitioners to drive increased business value. With Infosys Cobalt, regulatory and security compliance, along with technical and financial governance comes baked into every solution delivered.

For more information, contact askus@infosys.com



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