

# INFOSYS LEARNING LEXICON

VOLUME 01 ISSUE 01



AMPLIFYING  
HUMAN ABILITY  
WITH THE POWER  
OF THE CONNECTED  
ORGANIZATION





## Pravin Rao

Chief Operating Officer and  
Member of the Board,  
Infosys Limited

The digital revolution has been creating disruptions in every industry the world over. While the world was coming to terms with it, a far more colossal disruption hit in the form of the COVID-19 pandemic. The pandemic is clearly causing disruptions of an unprecedented nature, where businesses across countries and geographies are facing significant demand-side challenges. The IT and IT-enabled services sector has been no exception. However, I strongly believe that in the medium-to-long term, we will all bounce back. Simply because we deliver exactly what the world needs now to learn, collaborate, and work effectively in remote, location-agnostic work environments. As we make sense of this new normal, every enterprise is reimagining their ways of working. They will consider transforming talent and building resilience into their existing business models. Some of these changes will perhaps be permanent as enterprises realize the positive impact they have on business. Technology is already playing a big role in enabling businesses to run remotely. In the new normal, this will only be amplified. So, in some sense, COVID-19 is a tipping point in the digital transformation of the workplace. The sudden shift to remote digital work has the potential to accelerate digitally enabled environments and workplace transformations.

But, with digitally enabled environments becoming the new normal, enterprises are faced with a tough challenge, one that will escalate if not addressed quickly and effectively. Even as they upskill their current workforce, the pace at which technology is evolving means that, very soon, the existing talent in their organizations will already be outdated. In such times, we see not just a talent war in the industry but a severe famine. Companies that are willing to quickly and effectively hire, develop, and retain talents who are better than those of their competitors will gain an edge and become future-ready.

As enterprises progress in their digital journeys, the winners will be those who utilize multiple hiring sources and re-skill workers in a culture of lifelong learning – invest in their people, who are the ultimate differentiators in a commoditized world. The focus will not just be on the technical skills of the future, but also on people skills like empathy, communication, and listening skills. The right balance will help people to perform effectively in the world of tomorrow.

This is a further validation of Infosys' commitment to continuous learning and re-skilling that has been the bedrock of our success for over three decades. We use our own evolution as a learning-focused organization to help enterprises revamp their L&D culture. This is why the insights in this Infosys Learning Lexicon stem from our own firsthand experiences and lessons over the years. We hope it sparks a new thought process on upskilling among its audience.

Onwards & upwards to a new era of always-on, always-evolving, continuous, and lifelong learning!





**Ravi Kumar S**  
President, Infosys Limited

The world we live and work in today has changed dramatically, and even more so in the last few months of 2020. COVID-19 – we have seen nothing like this before, and we are learning every day to get a little better at dealing with the massive disruption caused by this pandemic. As cities shut down, travel grinds to a halt, and our collective daily routines become unrecognizable, there are new capabilities emerging and new ways of coping that will seed long-term positive outcomes in our lives and work. Virtual collaboration, remote work, and the digital infrastructure to deliver on these needs – these are immediate needs that organizations around the globe are delivering, some unfortunately in a stopgap manner simply because it is a new normal for them. In many ways, these changes were already on their way and the COVID-19 pandemic has only made it impossible to ignore the immediate need for digital transformation in our work and lives.

Everything around us – our workplaces, our workforce, entire industries – have gone through 180-degree shifts in the Fourth Industrial Revolution. Every enterprise has automation, AI, machine learning, and new age digital technologies on its mind. And with it, they are also wondering how to create jobs for the future as technology replaces the human skills of the past. The future will demand that humans focus on cognitive, non-repetitive tasks and start looking at machines as a way to amplify their own abilities. The next shift will be one from a people-only workplace to a people + machines workplace. Machines will do the problem-solving. So the human capital we now have will switch to the creative job of problem-finding. However, for our current workforce to keep up with the new challenges of this new paradigm, they will need to unlearn and relearn nearly everything.

The most significant shift that this time in history requires is for organizations to definitively move towards a culture of lifelong learning. Every employee must make the shift to a continuum of becoming lifelong learners. For an individual to imbibe that culture of being on that learning curve for a lifetime is a big switch. But it is one that must be made. At Infosys, we are committed to powering lifelong learning in several ways. We actively collaborate with governments. Our hiring from schools in the US, for our six digital centers, is in partnership with state

governments and local academic institutions to create new future talent, which does not already exist in the market. When it comes to creating lifelong learners, we have the Infosys Foundation in the US. This is among the top three foundations for computer science education in K-12 schools. Our endeavor is to teach teachers so that they are, in turn, equipped to teach students. We also teach students of course. And we are doing this on a massive scale. At a product level, we have a learning platform called Infosys Wingspan that helps enterprises curate learning for their employees across the spectrum of the organization. In fact, we leverage Infosys Wingspan as a key accelerator of our own talent transformation program.

The next generation of learning will require entire ecosystems to come together – from governments and institutions to enterprises and technology partners to managers and employees. At Infosys, we are focused on bringing these moving parts together to truly impact the way we upskill and learn. We are making the world future-ready, and the Infosys Learning Lexicon is a step in that direction.

Human capital has been amplified through focus on Work, Workplace, and Workforce in the Fourth Industrial Revolution. In this journal, our team reflects a journey of learning in the context of our organization as a live enterprise. We share with you the Infosys way of building a Culture of Lifelong Learning over the years, our trials and experiments, our learning and progress. It covers Learning Experience, an introduction to Learning Platforms, and the way features work their magic along with advanced telemetry. Telemetry that speaks across our organizational ecosystem. It also shares our perspective on the futuristic infrastructure that enhances learning and the investments we are choosing to make world over. We have realized that the investment in marketing and communications amplifies our organization's learning culture making it all pervasive. The impact of all this on business outcomes is our final takeaway, such that it is the foundation of our strategy.

I hope the deep insights in the journal inspire you to kick-start your own journey of lifelong learning.



**Srikantan Moorthy**  
EVP – Head – US Operations & Global  
Head – ETA, Infosys Limited

Over the last three decades of experience in the technology industry, especially in my ETA role at Infosys, I have been fortunate to get a front row view into the changing dynamics of corporate learning. The last decade especially has changed everything, with the rapid evolution and adoption of digital technologies across all business functions. These changes have meant new challenges and opportunities not only for Learning and Development teams but for the entire learning ecosystem – from learners to educators, platform developers to content curators, and assessment creators to learning certificate providers. The same technologies that are questioning the status quo at work and in life are proving to be great enablers in maximizing the impact of learning initiatives.

The onus is upon today's evolved Live Enterprises to seamlessly incorporate learning into an organization's ethos, such that it becomes a continuous and seamless process that is well integrated into the work of an employee. Moving away from the culture of leaders just 'sending' people to get trained, organizations must foster an environment of continuous learning, inspiring employees to self-initiate their own learning paths to stay professionally relevant through lifelong learning.

I am pleased to introduce the Infosys Learning Lexicon as a resource for anyone who is invested in learning – L&D teams, C-suite and decision-makers, educators, and learners. Together, we form the learning ecosystem and together, we can level up the culture of learning in our organizations, teams, and universities.

I welcome you to join me and the ETA team at Infosys on this journey.



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Our endeavor with the visual design is to craft a convergence between Human, AI, and digital. Each graphic is a coming together of a moment in the here and now, that converges with a learning design in the present continuous and leading us into our tomorrow.



# WORK, WORKPLACE, AND WORKFORCE IN THE FOURTH INDUSTRIAL REVOLUTION

Recently, a tiny, invisible virus sent the world into their homes. It showed us that life and work as we know them can change dramatically at any time. Suddenly, organizations around the world, even ones that were traditional and conformed to established standards, had to make the shift to remote working and online collaboration. These changes had been coming for a long time, with or without the virus. In many ways, working in the digital-only world was already becoming the new normal. A pandemic among other world events accelerated these changes, without giving much notice or choice to employees and employers.

With millions of dollars at stake, organizations today appreciate the need to take heed of this pace of change. It is about time we craft our strategic response to change, with learning at its front and center.





## The Genesis of Change

The last decade has transformed the world like never before. The way we interact, socialize, work, collaborate, get our news, network with colleagues has all changed. This change is a function of what the World Economic Forum calls the Fourth Industrial Revolution (4IR). Fueled by rapid advances in Robotics, Artificial Intelligence, the Internet of Things, Digitization, and Automation, 4IR is transforming how products are envisioned, manufactured, distributed, acquired, and consumed and importantly, what consumers and employees expect of organizations. Add the new division of labor between humans and machines to this mix, and organizations are grappling to manage change in a completely transformed Work, Workplace, and Workforce ecosystem.

### Work in the 4IR – humans vs machines or humans feat. machines?

McKinsey & Company predicts that by 2030, up to 375 million workers<sup>1</sup> around the world will need to switch occupations due to automation. Post COVID-19, the numbers could be significantly higher with a complete revitalization of organizations. This is not surprising because throughout history, machines have consistently replaced humans at physical or repetitive tasks. But it is the sheer number, the speed, and the global scale at which jobs are being made redundant that is mind-boggling. Through AI and automation, the 4IR is bringing about changes not only in the physical realm but also in the cognitive realm. This means that it is no longer just the low-skill jobs that run the risk of being replaced but even high-skill ones such as those of programmers, auditors, paralegals, accountants among others. Entire industries are shifting and adapting to these changes, opportunities, and threats that the 4IR presents.

But it is not all bad news. While some jobs are threatened by redundancy, there are also many that will grow rapidly. In fact, according to the World Economic Forum, AI is expected to create 58 million new jobs<sup>2</sup> in the next two years. At the same time, people who are working in the existing jobs will require whole new skill sets to remain relevant in the 4IR.

An example of this is in the context of manufacturing. Robots will slowly but surely take over the repetitive tasks of the assembly line. Employees in this sector need to be equipped for higher order tasks, and these may include managing the robots, repairing the sensors, optimizing the assembly line itself, and possibly even bringing in elements of new creative energies into the system. The onus is on organizations to level up workplace skills to equip employees for the jobs of the future. This future will see more “collaborative intelligence” – or a

new paradigm where humans and AI will work collaboratively to enhance each other’s strengths. For example, human skills like leadership and teamwork, creativity and analytical thinking will fall under the human realm. Simultaneously, analyzing large amounts of data, writing simple code, or assembly line production will fall under the realm of AI. Humans will bring the human touch to work and machines will bring pace and structure.

Another example is from the automotive sector that has recently been focused on driverless cars, made possible with technologies like AI, computer vision among others. One may wonder if the driver of the future can compete with driverless cars. Almost impossible. So, where does the human aspect fit in? The role of the human would be to refine the driverless ability to a far greater degree than what it is. It would be to constantly build scenarios to test out and continuously enhance the driverless ability of cars.

**According to the World Economic Forum, nearly 2 million jobs<sup>3</sup> will be created that would require unique human skills. This would require them to forego traditional methods, adapt to the advancements, and develop thought leadership and a future-focused approach to skilling.**

Many of these changes are happening much faster than we can comprehend. The number of technical and soft skills required by today’s workforce in order for it to stay relevant is already growing rapidly. Further adding to this complexity is the fact that mass-scale skill development is not happening fast enough. In such times, obsolescence for skills takes lesser time than the careers of most people – and the rapid redundancy of many technical skills only proves the need for a new approach to learning.

### Workforce in the 4IR – digital natives show the way

The millennials, the digital natives, the new workforce. Who would have thought that a generation that is just about stepping into adulthood and employment would have such a profound impact on leadership, management, business, and much more? This is a generation that has grown up watching the world change rapidly, a change that was primarily led by the Internet and digital technologies. Unlike previous generations, the millennials have known and seen life from the other side of a screen – first, the PC and now the smartphone. A similar tectonic shift has happened in learning too – going from textbooks to digital learning. Millennials and Gen Z went from buying books from neighbourhood bookstores to one-click purchases on the Amazon Kindle. Instant gratification is this generation’s middle name. Access with an Uber at location in 2 minutes; choice with a dizzying array of show recommendations as entertainment; immediate social virtual connections as catch up with school friends happens without much planning and deliberation over video calls. This is a generation that readily embraces technology, builds apps but more importantly, actively engages in being an autodidact through the endless repository of knowledge that is the Internet. It is not afraid to swiftly explore the crazy, is eager to stay connected, and most importantly express their opinions on life, not least of all its own learning and career progression.

In fact, a recent study by the Mayo Clinic<sup>4</sup> concluded that millennials thrive in learning environments that mirror these exact digital experiences that they are used to in life – collaborative, recommendation-led, allowing active engagement, and instant feedback. Clearly, digital technologies, social media, and e-commerce have changed the millennial workers’ expectations from their employers.

Thanks to the rise of SMAC (social, mobile, analytics, and cloud) technologies, millennials demand a culture of openness and instant collaboration with people irrespective of hierarchies and locations. This generation is invested in its own career progression and demands that employers facilitate a culture of learning in order to keep up with the new skill requirements of the 4IR.

In addition to the millennial workforce and its own nuanced demands, this is also the first time in history that people from all the four generations are at the workplace simultaneously. The lines of seniority both in age and in designations are blurring. Managing the dynamics of this new workforce requires a whole new set of people skills at the workplace. But more importantly, it requires a culture of Z-shaped learning, or the ability to learn, unlearn,

and relearn in a brand new context while doing this seamlessly in continuous learning cycles.

### The Gig Economy is here! Finally.

The labor force around the world is changing and there is no better evidence of it than the shift from traditional employment to on-demand employment facilitated by the Gig Economy. A third of the U.S. workforce<sup>5</sup> comprises of freelance workers and some estimate it to grow up to 43 percent<sup>6</sup> in 2020. This means that employees around the world are seeking higher levels of flexibility in work hours as well as roles. They are more willing to take up new roles and learn on the job. This new workforce understands that the far-reaching implications of 4IR translate to higher demand for gig workers in the future and that these can only be individuals who can learn quickly and continuously in order to keep up with

the skills that the jobs of the future would demand.

Simultaneously, the new workforce demands that the skilling and learning programs in their organizations allow the flexibility and opportunities that mirror the advantages of the Gig Economy. Organizations – and that includes Infosys – need to mirror the advantages of the Gig Economy in order to offer their full-time workforce diverse opportunities in keeping with their skill sets and areas of interest. Today, skilling employees to enable them to take on job roles that they were not academically trained in is the new normal. Programmers moving to marketing roles, analysts on fast track to manager roles – these are shifts that now must happen quickly, seamlessly, and with just-in-time interventions using a combination of relevant learning, agile content, and regular assessments.



## Workplace in the times of 4IR – open and collaborative with digital technologies at its core

Flexible hours. BYOD. Remote workers. Gig workers. Values over profit. The new workplace is not an office. It is a shared sense of purpose, a culture of collaboration, the ability to tap into collective skills to drive business value. The evolved workplace empowers, inspires, and re-skills its workforce to not just deliver their best, but also communicate, collaborate, and solve complex problems by learning continuously.

Although technology does not define this new workplace, it does play a crucial role in the 4IR. Attracting the right talent, bridging physical and digital workspaces, appealing to several generations of the workforce, and a culture that is alive with learning and collaboration amongst the workforce form important components of this new workplace. In fact, the process of learning begins at the stage of recruitment, where learnability a key Infosys talent strategy becomes a valuable criterion of hiring. Once the workplaces hire employees who are open to learning and development throughout their employee life cycle, they become more equipped to adapt to rapid and extreme changes at the workplace.

## The new work, workplace, and workforce together form the 'Live Enterprise'

Today organizations are expected to demonstrate "like never before" agility, proactive, predictive, intelligent responsiveness, processing of ideas, and hyper-productivity. Additionally, what truly defines today's workplaces are their sentience. Organizations that remain evolving, sentient, continuously learning, and humane in the face of change are the ones that will gain a competitive advantage. At Infosys, we call these sentient, evolving, and continuously learning organizations the 'Live Enterprise'.

Finding success in this new model of work, workplace, and workforce requires a holistic approach to digital enablement as well as lifelong learning.



## What does the new Work, Workplace, and Workforce model mean for Corporate Learning?

We have put it down to three critical areas that need immediate attention:

- Building and rewarding a culture of lifelong learning is all about promoting micro-change routines which over time will create new digital routines, with a focus on micro-feedback, helping people improve constantly.
- Open, collaborative, and multi-experience learning mind set being adopted by multi-generational learners as they seek guided practice and experiences of proximity to source with top tech trends like Edge Computing, Hyper Automation, and Practical Blockchain.
- Corporate trainers need to look at their roles differently to be able to simulate learner behaviors and learning patterns enabling them to provide learning in a seamless way. Ensuring Zero Latency and Instant Simulation will bring transformation like never before.

In the subsequent pages of this journal, we dive deep into how learning platforms, decision-making, and leadership perspectives need to evolve continuously to deliver on these areas.

<sup>1</sup>McKinsey Global Institute's Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation

<sup>2</sup>World Economic Forum's The Future of Jobs 2018

<sup>3</sup>World Economic Forum's The Future of Jobs 2018

<sup>4</sup>Mayo Clinic's Milestones and Millennials: A Perfect Pairing-Competency-Based Medical Education and the Learning Preferences of Generation Y

<sup>5</sup>Gallup's Gig Economy and Alternative Work Arrangements

<sup>6</sup><https://www.nasdaq.com/articles/the-gig-economy%3A-2020-freelance-workforce-predicted-to-rise-to-43-2017-06-14>





# BUILDING A CULTURE OF LIFELONG LEARNING TO AMPLIFY HUMAN CAPITAL

“Lifelong learners” and “Lifelong learning” - what is the difference?  
“Lifelong learners”, a term coined in the mid-20th century, refers to people over 50 years of age who wanted to learn new things just for the fun of it, or for the intellectual stimulation it provided. But today, “Lifelong Learning” refers to something far more intense. What is it, exactly?





In today's context, Lifelong learning is used to describe learning that can happen at any time in an individual's life. It could be at school, at university, in their first jobs after university, anytime during their professional career, and even after retirement. There is no age limit to it. It happens because the individual is intent on learning something new to remain relevant – more so in the face of the unprecedented changes brought along by the 4IR. Stopping the learning process would mean obsolescence, lack of a job and financial security, and irrelevance in the future of work. It is therefore important that individuals keep their ears to the ground to sense the changes sweeping past, keep acquiring new skills, and simultaneously, let go of the skills of the past that may no longer be necessary. In today's highly competitive economic environment and rapidly changing

technological landscape, lifelong learning is not just critical for the individuals (i.e. employees) alone, but for organizations too. In the context of organizations, lifelong learning is a matter of culture, often driven top-down and requires active engagement from the C-suite, L&D leaders, managers, and subject-matter experts. The most desired outcome of lifelong learning within organizations is to facilitate opportunities for employees across levels, generations, learning aptitudes, and backgrounds to continuously learn-unlearn-relearn new skills – the Z-shaped learning culture – in order to stay relevant. For organizations, whether they enter new markets, change business models, or just strategize in order to stay relevant in today's complex and dynamic marketplaces, lifelong learning plays a key role in helping them to survive, even thrive. Building this culture needs equal participation from the management as well as the employees of the organization. Leaders need to commit to significant investment of intent, time, and money. On the other hand, the employees have to let go of the old school of thought that perceived learning as a "necessary evil".

Instead, they must embrace the habit of lifelong learning and participate proactively in their own upskilling. For the organization, the benefits of these investments far outweigh the costs. When organizations see the benefits come to life, leaders embrace the culture, walk the talk, and nurture it consistently. For the employees, staying relevant alone is reason enough. It is not without reason that even the United Nations' Sustainable Development Goals focus on ensuring inclusive & quality education for all and promoting lifelong learning. It is important that organizations ask themselves<sup>1</sup> if they are ready to build a culture of lifelong learning or not. An important method to make lifelong learning a reality is through micro-changes that create new and relevant routines which bring about the larger change over time. Organizations should find tools and practices that allow for behavioral and culture change by bringing change in small transactions. **Why is a culture of lifelong learning so critical?** The lifelong learning culture plays an important role in empowering employees with the right set of tools to level up their own performance. Higher employability, opportunities to move within roles in the organization, staying relevant in a

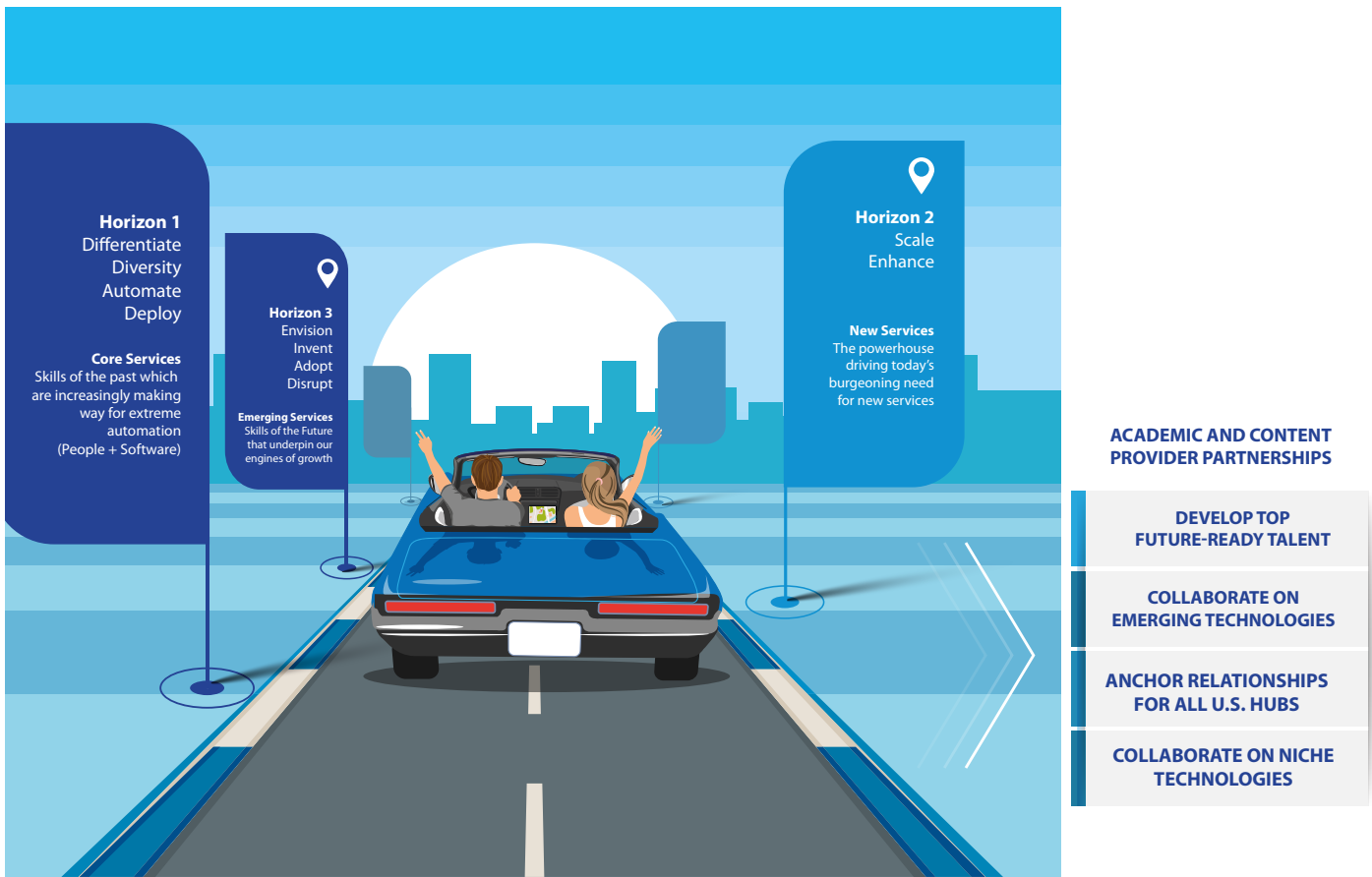


Figure 2: Horizon 1-2-3 Skills

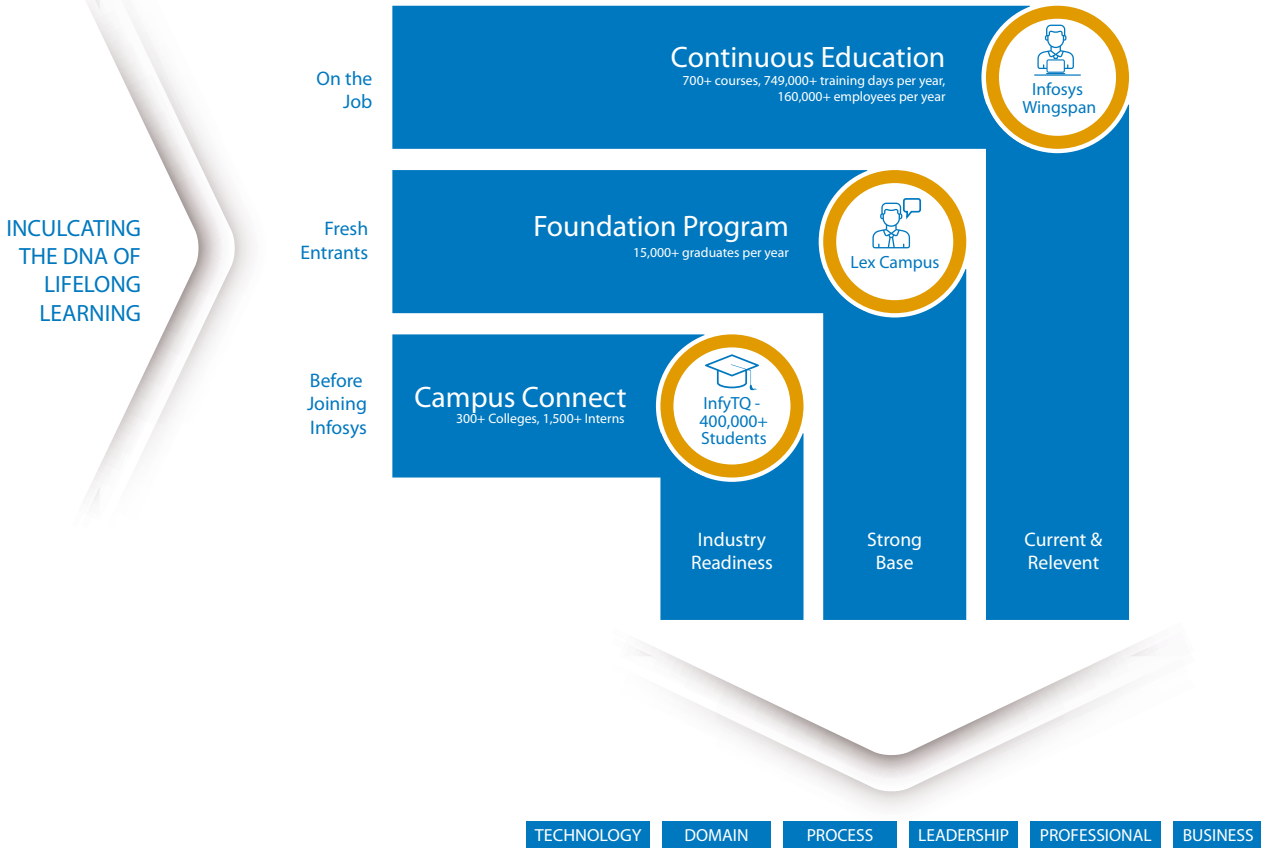


Figure 1: How Infosys fosters lifelong learning with interventions throughout the employee life cycle

dynamic and rapidly changing environment of 4IR are all important outcomes for employees in a culture of lifelong learning. Beyond just technical skills, such a culture also enables employees to develop stronger capabilities in areas such as leadership and people management, coaching and mentoring, and change management. **For the new workforce, the organization is not stubborn on finding the exact skills at the time of recruitment. It is willing to hire an individual with adjacent skills, invest in them, and enable them on the required skills. This change in behavior owing to the lifelong learning culture can be a huge source of motivation to the employees and their long-term loyalty to the organization. In fact, according to LinkedIn's 2019 Workplace Learning Report, 94%<sup>2</sup> of employees say that they would stay at a company longer if it invested in their career development. Happy, satisfied, and skilled employees are known to be able to work more collaboratively, be more productive, and keep the common business goals on their radar, and achieve them with higher levels of creativity and innovation through the employee life cycle. This is why lifelong learning is critical throughout the employee life cycle right from the time of hiring.**

Naturally, lifelong learning allows organizations to capitalize on the existing and potential skills of its employees in staying relevant and ahead of the curve. It is a vital source of competitive advantage for organizations and absolutely essential for an edge in the talent wars as well as business sustainability. A win-win proposition if ever there was one. **Lifelong learning helps in navigating the Skill Hierarchy – an Infosys perspective** At Infosys, we follow the Horizon 1-2-3 model for differentiating the various skills required at an organization level. In this model, Horizon 1 skills are the skills of the past which are paving the way for extreme automation. Horizon 2 skills are those driving the needs for new services. And finally, on Horizon 3, we have the skills of the future that will drive our growth. Having classified the skills in one of the Horizons does not mean that they will remain there forever. They are regularly calibrated and recalibrated across the different horizons based on market trends, customer inputs, employee needs, and internal strategies. Navigating through these Horizons is addressed using a well-defined learning strategy. At its core is to tap the enormous knowledge capital residing with the corporate trainers and subject-matter experts within our organization. The external academic and content partnerships are critical complementary elements. For our employees, the navigation through these skills is made possible through our always-on, anywhere, anytime learning ecosystem that spans both our corporate university and our learning experience platform. This rich learning ecosystem itself is the outcome of the investments made as part of our lifelong learning culture.

**How does one build a culture of lifelong learning?** At Infosys, we do this by bringing together the key stakeholders – the leader, the manager, and the individual, along with just enough digital intervention. The culture of lifelong learning begins with a change in the mindset of people at every level – the leader, the manager, and the individual. Leaders across the board are culture builders, subject-matter experts as well as decision makers for learning investments. Their ability to lead from the front in making lifelong learning a key imperative is where the culture change begins. Then come the managers. As the first level of authority for each individual and the bridge between leaders and individual contributors, the manager's role in a culture of lifelong learning is perhaps the most critical one. They cascade organizational learning initiatives, set learning goals, assess and perform awareness checks, enable inter-team collaboration while helping them network with mentors as well as subject-matter experts. As an individual, each employee of the organization plays a critical role in enabling lifelong learning. By being heavily invested in their own career goals, self-supervised learning, and following the learning path set out collaboratively with their managers, every individual becomes a lifelong learner. Of course, then comes digital intervention, where all the moving parts converge.





### Digital intervention then moves the needle from training to continuous learning

Unlike training, which follows a sage-on-stage model of imparting information and knowledge, learning is the process of absorbing and internalizing information and implementing it in several contexts. Learners play a more active role in learning, unlike passive listening or reading in training models.

An optimal e-learning environment brings together the best of training and learning models so that the trainer's skills and experience go hand in hand with active participation from learners. This model is far more effective in the new W3 ecosystem where employees look to organizations to empower them in a way that they can exercise choice in what, how, when, and where they learn. It is little surprise then that one of the most critical components in building a culture of lifelong learning is the right learning platform itself.

The importance of the right learning platform in the entire learning ecosystem is aptly captured by our Chairman and Co-founder, Nandan Nilekani, when he says "The only friction between an employee and their learning should be their MOTIVATION". The rest should be taken care of by the organization.

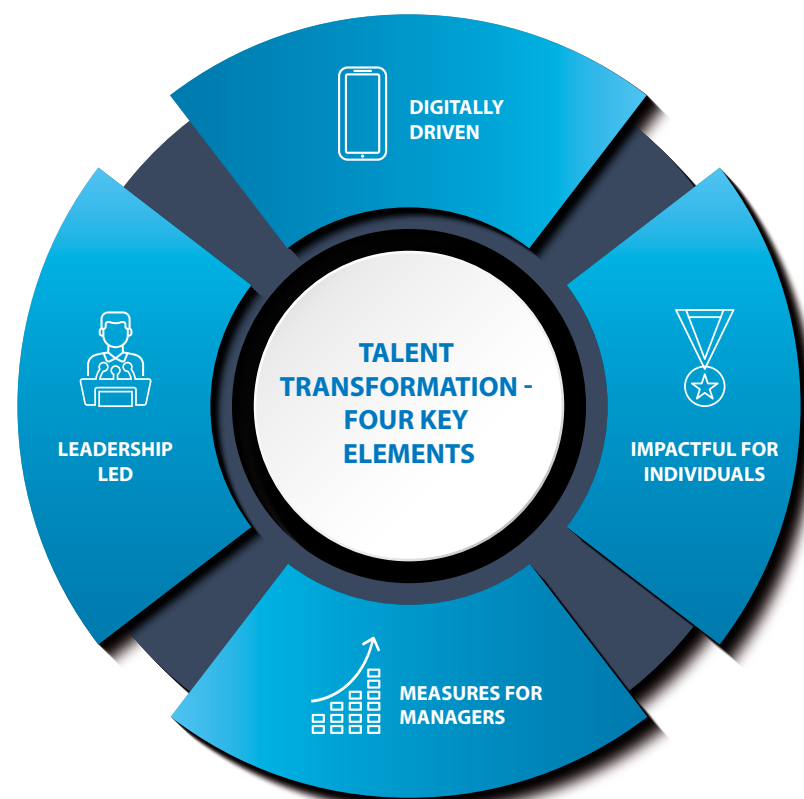


Figure 3: At Infosys, we build the culture of lifelong learning through talent transformation across the employee life cycle.



“ IF WE TEACH TODAY AS WE TAUGHT YESTERDAY THEN WE ROB OUR CHILDREN OF TOMORROW ”  
- JOHN DEWEY



GOOD BALANCE IS NEEDED TO ADDRESS THE LEARNING NEEDS (FOR THE SUCCESS OF INSTITUTIONS AND THE LEARNERS)

Figure 4: How Infosys is moving the learning needle from convention to technology-enabled



**The role of universities in developing lifelong learners**

Xerox PARC Laboratory's former director wrote in his book, A New Culture of Learning, that the half-life of a workplace skill is now just five years and that too continues to shrink rapidly. This holds true for corporate learning content as well as university curriculums. More and more universities around the world are recognizing the short shelf-life of skills and that, much of what they teach in college, especially in the STEM fields, is outdated by the time their students graduate. The culture of lifelong, continuous learning cycles therefore begins in the universities of a world where learners can no longer afford to graduate and believe learning is over.

At Infosys, we have noticed a shift in industry-university partnerships in the face of these developments. In the past, industries would approach the universities to device their training programs and courses. People coming out of the universities were considered skilled professionals ready to deliver the best outcomes when they enter the industry.

Now, though, more and more universities approach organizations like us to help them develop and curate content as well as curriculums that prepare students with long-term 4IR skills such as complex problem solving, creativity, critical thinking, etc.

The impact of ongoing reskilling and continuous learning cycles is felt most significantly on undergraduate and graduate education, where universities are already inculcating in their students the habit of consuming and learning industry-relevant content in short spurts when they need it, rather than in lengthy blocks of time as they do now. This trend mirrors the style of learning and development that is being adopted by today's organizations.

**Impact of on-demand learning model on lifelong learning**

Given the growing importance of lifelong learning, many new players have entered the market to lay claim to delivering learning in the new on-demand model. Traditional colleges and universities are ready to compete with the dizzying array of learning content providers while investors continue to pour in billions of dollars' worth of investment into e-learning start-ups. Corporates, on the other hand, need to make wise

decisions on what really suits them. They need to embrace the principles of lifelong learning and be guided by it. At the same time, they should strive to create their own signature culture for lifelong learning that is relevant for their business context and their employees.

We, at Infosys, have created the Infosys Wingspan platform specifically for this purpose. It is a unique platform with remarkable flexibility that can be leveraged by any organization to tune it to their unique learning culture.



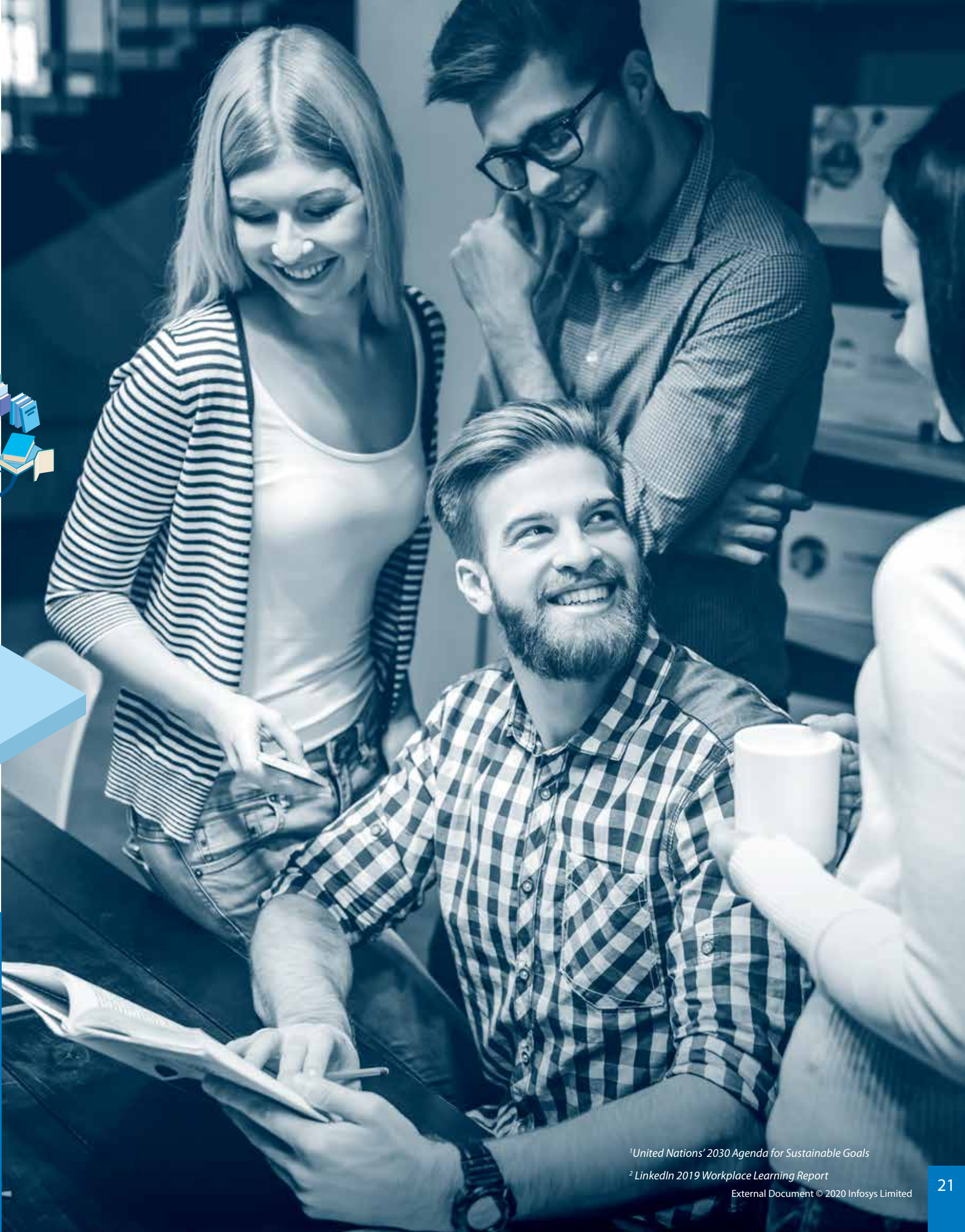
**Consider as you implement in your organization**

- 1. Does your organization have a long-term learning strategy or is learning focused on short-term goals?
- 2. Does your organization have a clear skill hierarchy?
- 3. Is navigation process through the skill hierarchy clearly defined?

- 4. Are the employees aware of the navigation process?
- 5. Are the employees aware of benefits of such navigation?
- 6. Are the stakeholders of your organization's learning strategy identified?
- 7. Are the stakeholder responsibilities identified?

- 8. Are the managers enabled to administer the learning strategy to the employees?
- 9. Is your hiring process in sync with your learning strategy?
- 10. Is your organization heavily reliant on external content providers for all the learning needs?

In the coming chapters, we demonstrate the tried and tested elements that form the core of Infosys' winning lifelong learning culture.



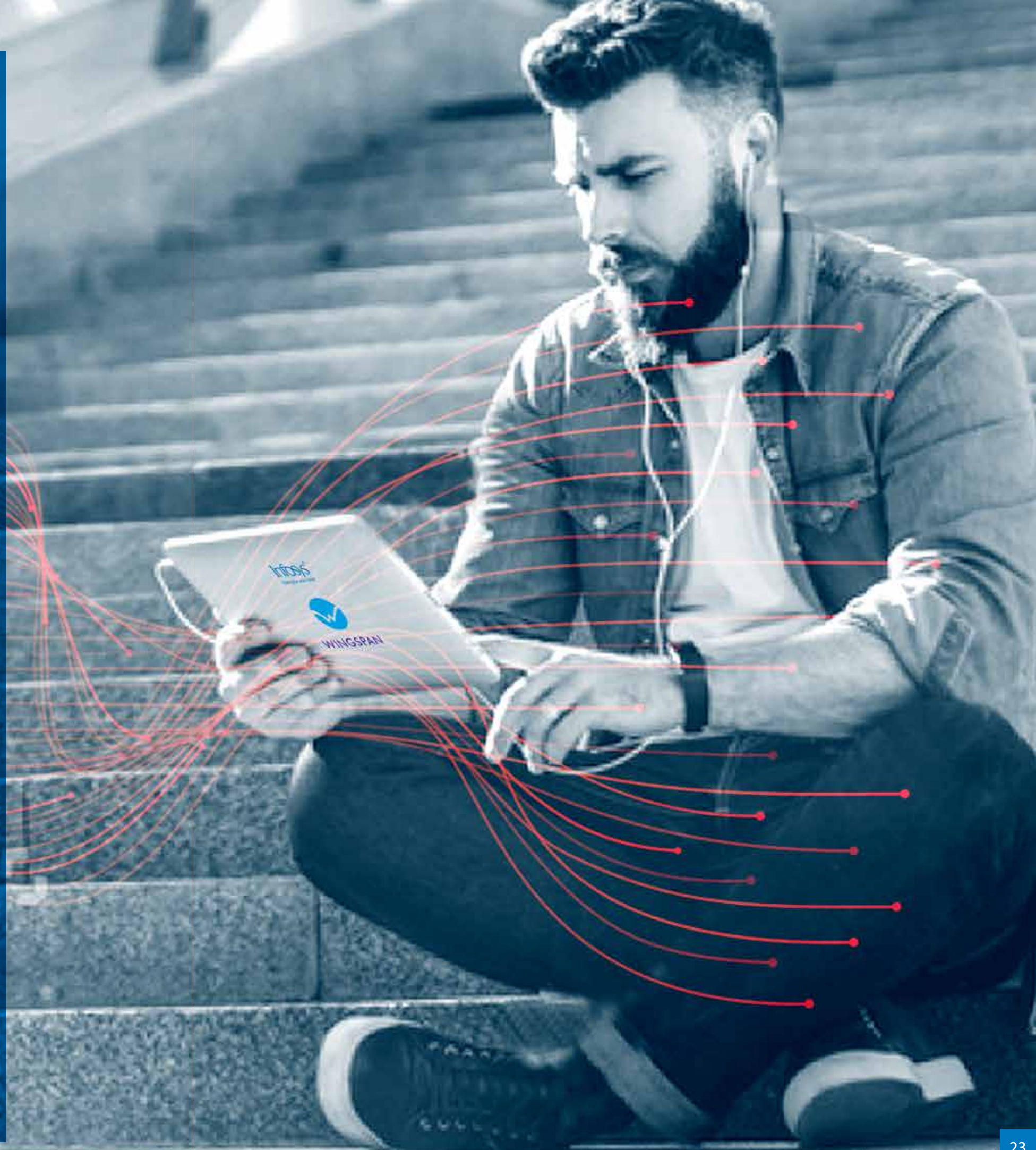
<sup>1</sup>United Nations' 2030 Agenda for Sustainable Goals

<sup>2</sup>LinkedIn 2019 Workplace Learning Report



# LEARNING EXPERIENCE LEADS THE WAY

Consider the example of the movie-viewing experience in theaters. Back in the day, this experience was based on the location of seats the viewer managed to get in the theater. Today, theater experiences have transformed to 3D and 4D, with creators competing to woo audiences with life-like entertainment. For the time-pressed individual who rarely goes to the theater, streaming services are vying for the subscriber's share of wallet as more and more viewers purchase subscriptions simply because of the convenience and choice to consume at their own time and pace.







Like movie audiences, learners' expectations from instruction models are changing too. Education has so far followed the traditional sage-on-stage model - a teacher or an expert taking center stage, disbursing lessons to a classroom full of students. The learning outcome in such a model is entirely dependent on the teacher's ability to transfer learning content effectively to learners. But in the 4IR, Learner Experience is changing rapidly. Instruction model must too. Emerging technologies, new delivery models the changing talent demographics, and geopolitical challenges are some of the forces disrupting and changing the talent needs of every industry.

Learners today are bored of prescheduled learning courses, that have prescribed paths and are instead seeking interactive, fun, collaborative, immersive experiences. They are also looking for a variety of options to choose from. Simultaneously, some learners also need guidance in direction when they are spoilt for choice.

From a corporate workforce standpoint, learners also need continuous upskilling in the face of the 4IR and its rapid technological advancement. There is also the reality of the AGILE world with employees' live projects and client deliverables that don't allow them to take time off their current tasks at hand and focus on learning initiatives. This opens up the need for relevant learning as micro-bytes render the traditional instructional model archaic.

Additionally, we also notice that while the traditional models of learning with the sage-on-stage was followed by many, some of our learners prefer the guide-on-the-side to the sage-on-stage. This is usually easily accomplished in small organizations through instructor-led synchronous offerings. But imagine mirroring this in large organizations - it would be a logistical and manpower nightmare to offer learners a guide-on-the-side, at scale across geographies. Clearly this calls for a new way of working, a new mindset, and new tools and platforms.

The demands of continuous learning at scale - especially in the age of experience - is only possible when it is delivered through

powerful digital platforms. Till a few years ago, learning digitization meant the legacy Learning Management Systems (LMS) which served as a system to record, track, and administer corporate trainings. Over time, it also opened doors for Massive Online Open Course (MOOC) platforms, which made large volumes of interesting content. Unfortunately, often these courses don't meet the needs of corporates that wish to make these learning programs an inherent, consistent part of their organizational strategy.

As training needs and expectations continue to evolve, LMS and just MOOC have given way to advanced Talent Transformation Platforms or a Learning Experience Platform. This is important because organizations are keen to contextualize learning for their employees, align the offerings to their larger business and learning strategies, and measure the impact of the learning across organizational metrics.

To meet this need for organizations that operate at scale and across geographies, we first placed the learner at the center of the Learning Experience. We then conducted extensive and immersive interactive sessions across

thousands of individual contributors, managers, and leaderships across corporations. This resulted in four key tenets to build powerful and effective Learning Experiences:

- **It's all about convenience** - For employees, anytime, anywhere, and on-any-device learning is the new normal.
- **Relevance is supreme** - Real-life, best-in-class curated content including safe practice environments are essential ingredients for effective learning.
- **Fun at the core** - Offline learning's best practices - gamification, contests, and educator engagement must move to digital channels as well.
- **Make it matter** - Learning must be integrated with HR systems and helping employees progress in their professional journey

### It's all about convenience

Speaking of convenience - our first tenet - our effort is to make it all-inclusive with learning available anytime, anywhere, and on any device but importantly making learning accessible to all and fostering inclusive working and learning environments. We are living in a time of transformational opportunities. Today's learner seeks 'experience' and not just sessions. Learners, in their personas as movie goers, are used to accessing their favourite online entertainment on their multiple devices as per their convenience, streamed at the time of their choice and also irrespective of whether they have network connectivity. Learning platforms need to scale expectations and rise above the existing experiences available to learners as they describe convenience in different contexts of their digital lives.

It is for this reason that Infosys Wingspan has a foundation of a multi-experience development platform that rapidly scaled our operations across a range of devices and platforms. From the platform's learning app to office computers, tablets, desktops, home laptops, learners'

expectations of multi-device learning access had to be met. Our multi-experience platform is further augmented by solutions like Raspberry Pi which could convert any space to a Learning Hot Spots and fitted into community Wi-Fi zones on campus and also on the buses that employees used for their commute home. The learner could leverage the convenience of downloading an entire resource and resume learning even during their commute even while on airplane mode.

Digital accessibility is also an essential component of new-age learning ecosystems. It is defined as the ability of a website, mobile application, or electronic document to be easily navigated and understood by a wide range of users, including those with visual, auditory, motor, or cognitive disabilities. As an organization that enables clients to 'Navigate their Next' through technology, it is imperative that the technology platforms we develop are accessible by all learners. Our learning platform offers color themes which can be chosen by learners. It offers the ability to intuitively understand links, images, actions expected on the website, and flexibility of navigation on keyboards vs mouse.

### Relevance is supreme

Learners are seeking real-life, best-in-class curated content including safe practice environments. These are two core elements that go into making learning relevant. We deliver this through:

- **Design** - Clarity in content creation
- **Curation** - Employees as experts, External partnerships, Content curators

### Design - Clarity in content creation

High quality learning offerings have been on the corporate L&D agendas for some time now. In addition to the focus on individual and organization, the strongest component of course creation at Infosys is clarity. The following are guiding principles to bring clarity in content creation:

- **Clarity in purpose:** Why am I supposed to know this?
- **Clarity in vocabulary:** What are you trying to say?
- **Clarity in topic connections and relationships:** Why this topic now? Why not later? Why not earlier? What is this course trying to teach? When will this course end?
- **Clarity on who the targeted audience is:** What do they already know? What should they know and be able to do?
- **Clarity on course objective:** Do you comprehend concepts? Can you practically apply the concepts learned?
- **Clarity on syllabus:** Does it aid the course objective? What are the best aids that can be used to explain each topic? - examples, exercises, diagrams, case studies, tables, etc.
- **Clarity on course flow:** Does it aid the course objective? Can the learner comprehend this topic at this point, based on what they already know till now?

Educators, learners, as well as organizations value the benefits of rich, relevant, engaging, and multimedia content.







### Curation – Employees as Experts, External Partnerships, Content Curators

**Employees as Experts:** Organizations started creating training teams by identifying a few trainers out of the best practitioners in production teams. The general belief at the time was that with further capability building, these select folks would be assigned the responsibility of training the rest of the workforce. However, with data and digital natives entering the workforce and workplaces encouraging multi-skilling, organizations must consider every employee as a potential expert. This allows for nuanced, diverse, and rich learning experiences through a diverse pool of educators and experts.

**External Partnerships:** With the learning industry booming, organizations have access to industry partnerships with content providers such as Harvard ManageMentor and IEEE. We also have partnerships with leading MOOCs to leverage their most relevant content. Off-the-shelf learning content through these partnerships can help meet just-in-time needs as well as enable organizations with powerful content that aligns with their learning and business strategies. More importantly, learning experience platforms must offer and enable different content formats that work seamlessly and effectively on the organization's chosen learning platform.

**Curating Team:** With a digital population and active internet users around the world growing in unprecedented numbers, learning content has truly become a commodity in our times. If organizations were to only choose external content and not to curate and contextualize it, the result may be a pile of glitzy courses with no coherence or relevance for the organization at large. Curation is essential at multiple levels – the



learner level in keeping with generational needs and learning preferences, at the organizational level keeping in cognizance the business outcomes that must be achieved through learning, as well as the industry level where learning must be contextualized to the changing dynamics and needs of each vertical. This is important considering each vertical - finance and banking, retail and logistics, manufacturing and health sciences, media and entertainment – has its own special nuances, pace of change, and dynamics that learning content must address. Every organization looks to customize learning in order to ensure that learners' goals and organizational goals are aligned. It is therefore undeniable that organizations with a sound learning strategy must also have a strong team that can curate all content across learning paths and organizational needs seamlessly, as well as consistently update the content in keeping with the times.

Learning platforms must also offer flexibility for managers to curate learning by stitching together learning paths for their teams adjusting to project and client needs. Connected advanced telemetry at the managers' fingertips associated with modules and resources helps managers track time spent on learning as well as understand learning inclinations of their team members. At Infosys, in keeping with our own brand of learning culture, we also enable individual employees to curate content. From creating their own learning playlists and sharing them with their friends and followers to crafting learning journeys by setting goals

for themselves and challenging each other, the ability to flex the learning muscle and be a content curator for the organization is now role-agnostic.

### Fun at the Core

Traditional learning models have always been so serious that sooner than later, learning fatigue sets in. But when fun forms the core of learning, learners often don't realize they are learning. We offer to our learners features like gamification, contests, and other forms of consistent engagement opportunities on Infosys Wingspan. This communication and engagement is driven through our platform with badges and leader boards. Following game principles, there are objectives, constraints, success criteria, and rewards for when objectives are achieved. Competing with self is inherent human nature and holds true for organizational learners as well. Simultaneously, we also offer learner comparisons for those who are motivated by competing with others. We also offer Social Cohorts where learners can be brought together with predefined goals, and are nudged ahead to achieve their goals through notifications and learning statistics.

Learning that mirrors the shared experiences of social media can deliver immense value for the millennial generation or even boomers who are now quite used to such experiences in their personal lives. In fact, a significant portion of corporate learning takes place today through offline on-the-job interactions with managers. However, this keeps the circle of learning limited to each learners' immediate team. This is why social learning has become a core tenet of modern learning strategies. Today's best learning experience platforms combine the best of online and offline social learning experiences. These experiences allow managers as well as subject-matter experts and educators to provide ongoing coaching opportunities to employees at scale. It allows for enhanced inter-team collaboration while also opening up opportunities for learners to directly contact experts in a location-agnostic manner. The platform also encourages employees who have developed expertise in their subject to teach and share their expertise with others. Infosys Wingspan, with its inbuilt messaging

and calling capabilities allows deep levels of collaborations to happen both synchronously and asynchronously.

Organizations that are looking to become high performers, must adopt social learning platforms not just to fit in with the values and learning consumption styles of its workforce but also to keep up with the learning demands of the industry. To ensure that your learning platform meets higher order needs of the future, we also believe in the need for advanced technology interventions. Adaptive learning for performance improvement is one such technique, that we have adopted in our platform experience.

### Adaptive learning for performance improvement

Adaptive learning as a technique dates back to the 1970s, when it was first acknowledged that futuristic computers would be able to develop learning modules as per the adaptability of the learner. Essentially, adaptive learning uses data to customize resources, activities, tests, etc. in order to meet each learner's unique and specific learning needs and capabilities.

Depending on the learner's engagement level

and mastery of the topic, the system can adapt itself. Some of the features of adaptive learning include:

- 1) Personalized Learning Path:** System would personalize and suggest a learning path based on the learners' current role, past learning consumed, and other such background parameters.
- 2) Learning Effectiveness:** The system constantly gathers data and insights on the learner's consumption and assimilation of concepts. This is done leveraging performance on interim quizzes, interactions, and engagements as the learner responds to them.
- 3) Learning Path – Course Correction:** Leveraging the inputs from the in-course performance of the learner, the system adjusts the learning path in-line with their learning maturity. This could work through feedback mechanisms that alert learners to an error guiding them back to a previous point in the lesson, or offer hints and tips as to how to resolve the current task. To the learner it feels like a live learning experience!

Adaptive learning is especially effective in corporate environments, where the goal is







## Consider as you implement in your organization:

1. Is employee at the center of your learning strategy and do you bring the n=1 approach to learning irrespective of the scale of the organization?
2. When content becomes commodity, how do you add context to ensure that learning caters to your organization's unique culture?
3. How do you measure the learning experience? How immersive is the data culture in your organization and how does it affect your learning strategy?
4. Do you follow the Sage-On-Stage (one Trainer to many learners) philosophy for learning or have you evolved to bring learning closer to the learner – both physically and virtually, synchronous and asynchronous manner?
5. How much Learning Experience is generic, leveraging a standard offering, versus specifically built by your own organizational unique philosophy and culture?

**Leveraging new available technologies to further enhance the learner experience. In the next chapter, we learn how.**

influence- and encouragement-based upskilling and assessment in order to enhance individual performances using data, technology, and content. It incorporates aspects of machine learning, cognitive science, predictive analytics, and educational theory to actively tailor learning offerings to each learner's need.

Learning experience platforms therefore must be designed to provide the right learning support to the right learner at the right time. This is exactly what we have accomplished with Infosys Wingspan. It considers each learner's education and performance background, past knowledge and skills among several other parameters to assess the learner's unique needs and deliver unique learning experiences at the right points of the knowledge cycle.

### Make it Matter

Integrating learning with HR systems and helping employees progress in their professional journey help make learning hours matter in the bigger picture of the organization's strategy. To make this happen, we need to ensure that the Data

Strategy is aligned as is the Career Navigation for employees. Metrics that matter allows employees to see clearly how their investments in learning leads to progressions in roles. This especially helps at the organization scale when human resource teams are able to help employees see their learning matter and contribute to organizational development.

**Data Strategy:** It is important to understand that the overarching theme of today's learning environment is data. It drives everything – from UX design to learning models, content personalization to tests and assessments. Data is what drives the Netflix-ification of learning in organizations, where learning recommendations come from deep data about learners' behavior, content consumption patterns, and learning paths.

It is hence important to know that data and insights can come from any employee touchpoint. The time spent on the platform, interest demonstrated in specific content or areas, content formats consumed, are some critical data points. These data points come from

employees' entire learning life cycle. – where they studied, what they studied, which past organizations they worked in, what skills they have acquired and what more they need to learn. Today's organizations need to have a data-native orientation in order to make their learning systems data-obsessed and hence, relevant.

Data and related tenets such as analytics and privacy, form the core component of new-age learning platforms such as Infosys Wingspan. In fact, data is such an inherent part of our platform at Infosys that every click, every assessment, login durations, number of learners online – everything that happens on the platform forms a unique data point that gives organizations deep insights such as the learning path for employees and learning effectiveness. These data points enable hyper-personalization of learning as well as other engagements that employees have with the platform. Infosys Wingspan also uses data to enable the nudge framework in the learning ecosystem, where positive reinforcement and relevant suggestions help influence learning behavior of employees.



**Career Navigation:** Employees set professional goals for themselves and aspire to create to do lists that will help them navigate their learning journeys to achieve these career aspirations. With competition steep in the marketplace, employees feel valued when organizations offer them clarity on how their investment in their own learning directly helps them navigate their careers. Organizations creating digital skill-tags is a way for employees to directly see if their learning helps accelerate their promotions.

As discussed in the earlier chapter, classification of skills - like we have done at Infosys with the Horizon 1-2-3 skills - not just offers clarity to employees, it is a way to navigate the talent landscape in an industry that is dynamic with skills changing over short time frames.

An agile, all-encompassing platform is a crucial ingredient.



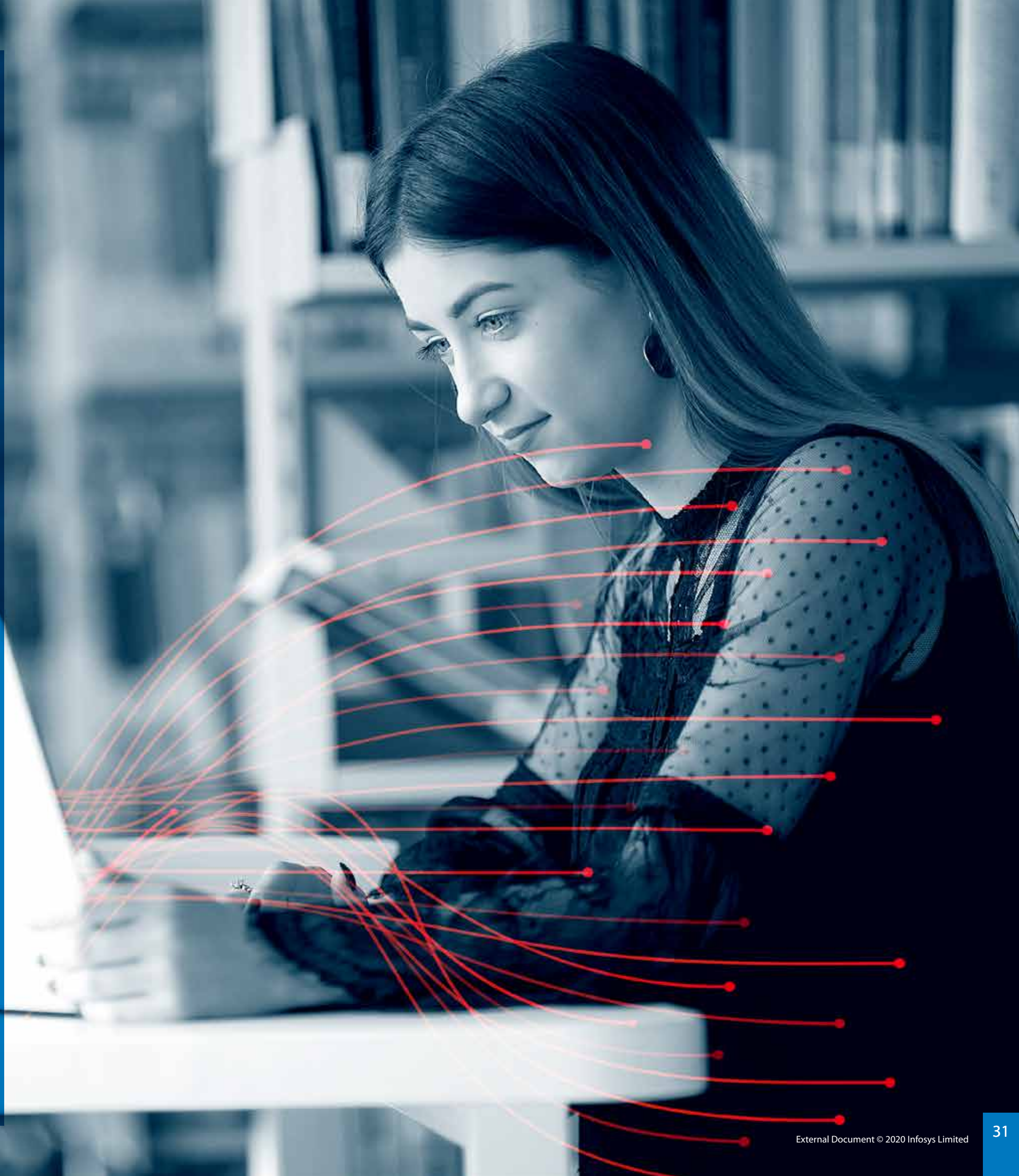
# THE LEARNER WANTS MORE, WAY MORE

In the previous chapters, we have looked at the aspects of learning experiences that today's learner demands - both implicitly and explicitly. We have seen that these demands are guided by their personal experiences using digital platforms built by digital native organizations. These experiences also come from the typical attention span of today's learners or consumers. Time is of the essence and how well we hold their interest is the key to getting the outcomes delivered - be it in learning or in terms of products sold.

Infosys  
Wingspan your next



WINGSPAN





In this context, the learner of the 4IR is no longer satisfied with traditional learning platforms, assessments, and learning paths. At Infosys, we began our journey of learning revamp by evaluating how we could drive meaningful experiences applied in the context of the organizational ecosystem. In this chapter, we articulate how the concepts we discussed in the previous chapters have been woven into our learning platform - Infosys Wingspan. At the core of building Infosys Wingspan was our ability to look at learning from the lens of the learner as well as that of the learning department. User stories that drive the learning behavior was also a critical data point.

The core elements of Infosys Wingspan have emerged after many design thinking sessions. While naturally there are overlaps between these elements, our consistent guiding principle was to foster strong affinity by addressing the core need of the learner depending on the context in which they come to the learning platform. Once we address these specific aspects, the other features and use cases apply well for all learners.

#### First-time Learner Experience

Features that help enrich the first-time user experience is a **“Quick Tour”** of the platform and then nudging learners to key in their areas of interests. This instantly brings to their screens relevant, personalized, and engaging content to pick from and learn. Beyond this, first time learners also can see **“Learning Recommendations”** based on the learning patterns of their peers in the portfolio. This enables them to keep up with the variety of relevant content options to choose and learn from. Infosys Wingspan recommendation engine scans its vast library for these topics, aggregates and brings together a list of such courses that can be consumed immediately. As the first time learner continues to learn on the platform, Infosys Wingspan is also able to recommend the best content suitable for a learner based on their learning patterns.

Learners are also shown **“Latest”** and **“Trending”** topics to excite them with new learning opportunities. The intent here is to expose the learner to the core of learning i.e. the learning content and paths to choose from rather than making them explore the platform. In traditional learning ecosystems, zeroing in on areas of learning can be time-consuming. But Infosys Wingspan is specifically designed to make this seamless, convenient, and most of all, effective.

In our three decades of experience in driving corporate learning at Infosys, we have seen that learners fall into three categories:

- Self-motivated – usually form about 10% of the workforce but can vary by organization or industry
- Explorers
- Watchers

#### Self-Motivated Learner

Now that the first-time learner is excited with the quick choices to learn from the platform, the idea is to further accelerate their learning journey.

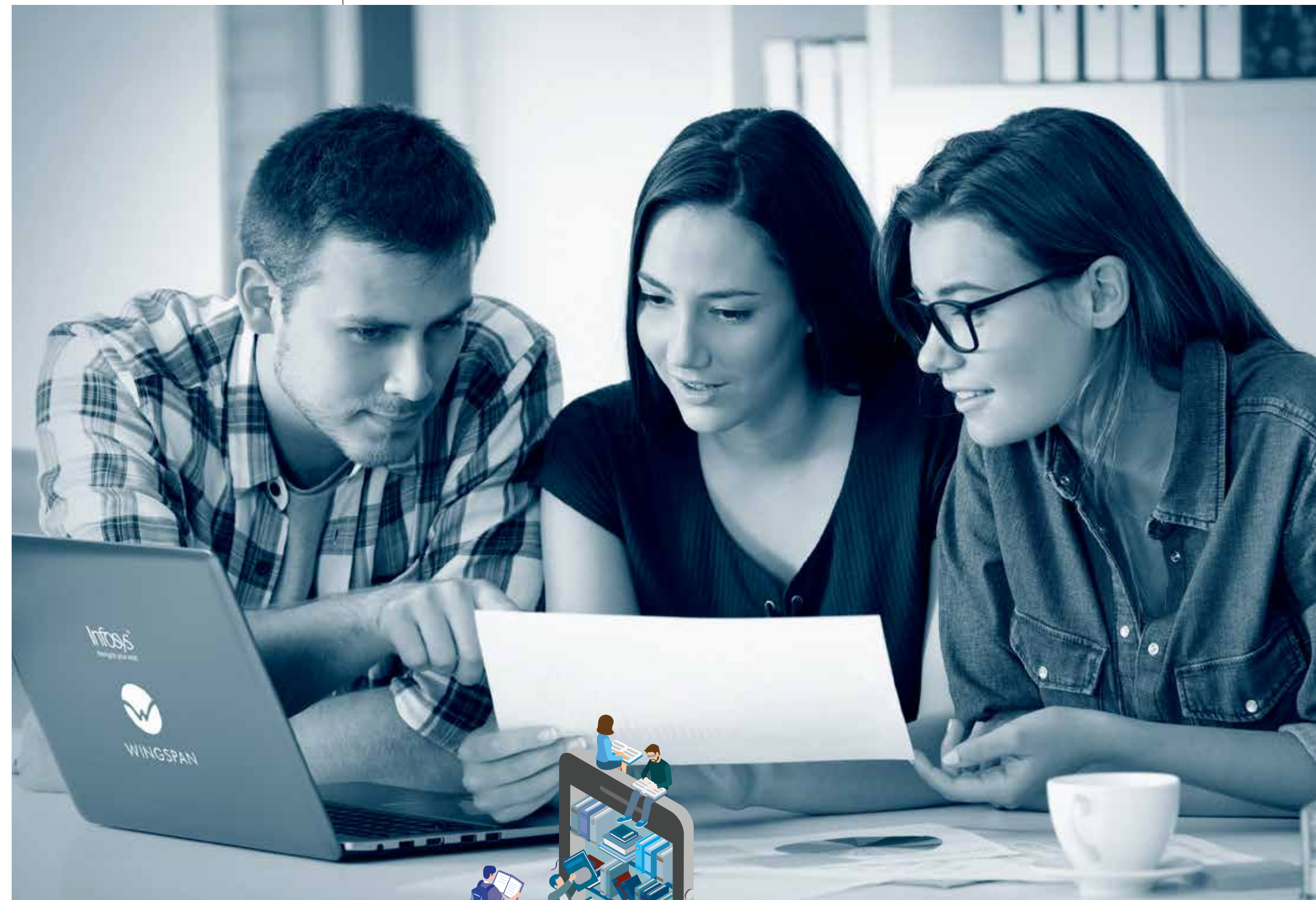
First, let us see how we accomplish this for self-motivated learners. They are the ones who know what they want to learn and invest their time in deep learning. Once they discover learning content and recommendations on the platform, features such as **“Goals”** and **“Playlists”** are demonstrated without having them leave the screen where recommendations and content is shown. The popularity of sharing music playlists among peers is a rage on music streaming platforms like Spotify. Infosys Wingspan contextualizes this trend in the learning ecosystem. We share more details on this feature later in this chapter.

We have observed that self-motivated learners like to set their own focused agendas and timelines. They can create a set of goals with timelines for themselves as well as for their teams. Self-motivated learners can also accept the goals recommended by their managers and have their progress against these goals tracked consistently. The platform then takes on the role of coach to nudge learners to complete their goals and remind them at regular intervals. Once the learning is complete learners are guided to complete relevant **Assessments and Certifications** to complete their journey of acquiring higher levels of competency. The other important aspect for self-motivated learners is to help cut down the time they need to spend to navigate their learning journey. Infosys Wingspan therefore comes with **“Continue Learning”** for the returning learner. This feature allows them to seamlessly learn from the same place where they left off, irrespective of the device. The learner could start learning at their work desk, resume during their commute, and complete it at home. Infosys Wingspan gives learners access to learning anytime, anywhere, and on any device. On the mobile app, you can also download the content and view it offline – in-flight as well as in areas without network connectivity.

#### Explorers - Learners With Exploring Mindset

Not all employees are intuitively clear on what they want to achieve from their learning journeys. Many of them want to take time to explore the topics before taking the plunge into deep learning. Learners who know what they would like to learn and get straight to it have at hand the **Infosys Wingspan Catalogue**. It enables them to drill down to the exact topics or skills that they would like to learn. The catalogue serves the purpose of showing the library of content tagged to competency area. But we are all living in the world of Google where our most natural tendency is to go search for a particular topic and then scan through the information that was made available.

We have also built our own version of intelligent search which not only provides learners with information but has select set of filters to find topics by duration, levels of proficiency, format of learning content, etc. While this feature is effective for most learners, it benefits the explorers the most. A fascinating feature for the discerning learner is the **Concept Graphs**. This is a representation of a topic and its relationship with other topics using a graphical style. Any search performed on Infosys Wingspan not only yields a list of courses and content that match



the search criteria but also a Concept Graph with the search element as the central node. The graph itself is created using Machine Learning algorithms which take into account all the structured and unstructured data available on the platform. This helps in ensuring that the learner doesn't just scan the learning results but is guided by interrelated concepts and explores linkages based on the relationships, without having to open any content. When they discover topics that interest them, they dive into the content for that topic and then continue their learning journey like the self-motivated learners undertake including learning, practicing, and taking assessments and certifications.



#### Watchers - Learners Who Prefer “Guided Learning”

There is a vast majority of learners in any organization that fall in the category of “Watchers”. These are essentially a group of learners who need some help with their learning journey. They have an idea of what they want to do, but are unable to chart a learning path for themselves. The **“Navigator”** or **“Guided Learning”** feature provides them with guidance to identify what to learn, how to learn, and in what sequence. Learners can explore role-based offerings, acquire skills of their choice, and build on their current skill set. For example, we have linked the Infosys’ Digital Transformation strategy to a set of 35+ new-age digital roles, with many



sub-variants. This is helping our employees upskill and become digital-ready. Employees can select the learning path for Digital roles, aligned to our Digital Transformation Journey built on five themes - Experience, Insight, Innovate, Accelerate, and Assure. Learners are shown the detailed path with a list of courses, Capstone projects to practice on, and associated certifications to complete in order to acquire and gain competency in the most relevant digital skills. They are also shown the time it takes to complete along with a list of mentors as well as learning schedules to attend.

The Navigator is further designed to demonstrate learning paths for managers and leaders based on industry trends and associated digital skills that address market disruptions. The emphasis in learning path is to show industry use cases, technology possibilities, and real-life implementations.

There are also learning paths for high demand skills and full stack roles across digital transformation themes.

The **Career Navigator** can be customized for specific client organization roles and structures.

### Practice and Competency Assessments - Learners that demand purposeful practice

No matter what the learner category is, self-motivated, explorer, or watcher, it is evident that without purposeful practice and ways to assess their learning progress, the learning journey will not serve its purpose for both learners as well as the organization. Additionally, while the platform caters to auditory and visual learners, we also need to gratify kinesthetic learners amongst our workforce. These are tactile learners who need to practice and carry out a series of activities as part of their learning in order to find themselves engaged in near-real environments.

For years, we worked in the physical realm with assessments. Learners who were keen on being assessed as they participated in certifications had only one way to get this done. They needed to be monitored by an authority figure in person. This was a tradition carried forward from academia. Infosys Wingspan digitizes this with a feature called **Virtual Proctoring**. It allows our learners to participate in assessments from anywhere around the globe. The feature especially benefits employees who are remotely connected or are in client locations and do not have the opportunity to access learning at central hubs. Through **Virtual Proctored** certifications, employees can take certifications anytime, anywhere. All they need is a device with a camera and microphone and they are good to go.

**Technology Playground** is another one of our futuristic offerings that allows employees learning multiple technologies to practice what they learn, as they learn. With the ability to practice coding and programming, the technology

playground is a feature that speaks to an entire segment of learners. Playgrounds are fail-safe lab environments created on the fly for learners to practice and code what they have learnt - all with just a browser. Learners can choose from the Playground and the software, and projects. The required environment is made available to them to tinker with and learn. The main purpose of the playground is to remove the learner from the hassles of setting up the environment and configuring the software to make it practice-ready. For learners who want to experience setting and configuring the environment, they have their own version of playgrounds to help them hone their skills.

The playground is not only for the technology learners. Different skill development playgrounds help improve professional skills of learners (soft skills). To help improve Call Centre employees with their interpersonal skills, we have created playgrounds that help them learn from their own customer calls and relive and improve in fail-safe environments.



### Social Learning - Learners who like to be engaged and not feel isolated

The 1940s Social Learning Theory by B F Skinner describes a learning process which proposes that new behaviors can be acquired by observing and imitating others. He had also proposed that in addition to the observation of behavior, learning also occurs through the observation of rewards and punishments, a process known as vicarious reinforcement. At Infosys, when we went digital with our learning experience platform, we brought in features that encourage social learning for learners who benefit from it.

Some learners are very good at learning all alone. As part of Infosys Wingspan, social learning in **Cohorts** is for learners who prefer to learn in groups. We don't allow our employees to feel like lone rangers by ensuring that their learning journey is not a daunting one. The Cohorts feature helps learners to co-learn with their peers and collaborate with them. Learners are also sometimes based on different geographies and time zones, but they can always reach out to experts or authors. The platform offers a seamless integration with other collaboration systems to mail or call them while also holding the fort on Privacy by Design. It also offers a Discussion Forum where learners can leave a note or query. This promotes synchronous and asynchronous ways of engaging learners as well as educators whether it be in physical mode or virtual.

A feature that encourages even introverted learners to benefit from virtual social features is **Playlists**. They can simply follow employees who make their learning public. The Playlist feature on Infosys Wingspan allows learners to curate existing content from the available library and create their own playlists. The value of curation is in the spin you can put on the content. With Playlist, learners are able to quickly get to the Top 5 or 10 content related to a topic and share them with their peers and teams, who they believe would benefit from these playlists. This allows anyone learning on the platform to be a curator and help improve the learning experience of their fellow learners by their own experience and not



just depend on centrally curated content.

Learning needs to also be fun for some of our learners. **Gamification** offers an array of solutions that attract this segment of learners. A personal element on the platform is each learner's individual **Profile**. They can also view the cool



courses and learning. Features like **Konnect** also encourage learners to participate in mini-quizzes and interactions in order to stay connected and engage with others, even remotely.

Not to leave behind one of the most used social feature where we like to follow role models and are influenced by their activities, in Infosys Wingspan we have brought in a feature for learners to follow **fellow** learners or leaders. Based on the privacy setting that learners and leaders set up in the system, followers get to see learning paths, courses, goals, playlists, likes, blogs, etc. that their role models share and can adopt them for their own learning journeys.

### Career and skills development - Smooth integration with HR systems

While the focus of learners is to learn new skills and improve competencies, it is essential for the organization to link the learning to the career architecture and guidance provided to their

**Badges** they have won as well as look at other badges they must unlock. **Leader Dashboards** offer details of learners before us who have completed the course with higher performance on assessments in fewer attempts and other such parameters. The platform also nudges learners to revisit learning, pick up courses from where they may have left off, as well as explore adjacent







employees. Infosys Wingspan helps in integrating learning progress for a particular skill and set of skills to HR systems so that career guidance and recommendations can be provided on internal opportunities to move across roles and new functions (based on demonstration of competencies). HR systems can also leverage learning recommendation APIs and showcase them for the different job opportunities in the company. This then becomes the pivot for learners to upskill for specific jobs that they are interested in.

Infosys Wingspan also has an additional feature “**Flexible Skill / Role Framework**” for managers to create roles specific to the work that the employee is expected to perform and link all the skills associated to that role. They can then assign the role to the employee and start guiding them on specific skills (combination of technology, domain, process, and soft skills) that they want their employees to improve. To make this more effective, we have built in a Skill and Role proficiency framework that can be tailored to any organization. For each skill, the learners can get a ring side view of all learning content available, playgrounds, certifications, and next learning course as well as the analytics on how many employees in the company have those skills and how they stack up in the proficiency based on their assessments performance and managers endorsements.

### Contextualized Learning to Project and Portfolio needs:

The learning platform allows flexibility for learners to develop their competencies based on their own preferences and professional career planning. At the same time it is critical for portfolios / organizations to contextualize learning and ensure that the employees quickly



settles down in the roles of their projects. This transition from learning environment to production environment needs to be handled effectively. For these reasons Infosys Wingspan provides many features that can be leveraged by managers in executing this transition well. The “**Channels**” feature on Infosys Wingspan allows managers to create their own micro-site with no effort from any L&D teams. All aspects of learners’ deployment to production environments get addressed on these Channels. For a new employee joining the organization, using the **Onboarding** function, managers can incorporate **role-based** kits to train and engage talent on the specifics of the project requirements. Project teams also work with L&D teams to create their own version **project simulators** (a variant of Playgrounds configuring different technologies needed to execute the projects). This will help learners get exposed to the live project environment before they join the projects. Hence it will reduce the friction to stabilize themselves

and deliver effectively. Learners can also see “**Knowledge Boards**” of respective projects and familiarize themselves via FAQs, known issues, common tools, and solutions that can be leveraged.

### Learners demand digital experiences in classrooms

The shift from the traditional classroom model of training to digital learning has been in motion for a long time now. But that does not mean that the classroom model is entirely redundant. There are certain benefits of classroom model of learning that must be preserved and enhanced for the 4IR. In-person engagement with educators and fellow learners and soaking in the wisdom of educators gained over years are some such irreplaceable benefits. But digital experiences that learners are now used to makes them demand more from classroom sessions as well. For example, it is difficult for educators as well as learners to

seamlessly engage and interact with each other in typical classroom setups of anywhere between 10-100 participants. This is where the power of digital technologies and learning platforms play an important role. At Infosys, we have been using our learning platform for classroom sessions as well. Educator and learners use the platform for specific subjects being taught in class. The educator uses “**Konnect**” app on the platform to periodically engage learners and validate their learning. Since this happens in real-time and is interactive, the educator gets to see how many learners participate in quizzes, how many of them understood the concept, how many times each learner gets the quizzes right, etc. This helps learners to course-correct as they go as well as improvise based on the real-time feedback. The app is also used by educators to ask learners to ask questions. Learners can vote for the critical ones that the educator can see and address immediately. Using our **Knowledge graph**, educators can also live stream experts for certain topics and the remote expert can get to

see learner profiles and their responses – resulting in continuous engagement.

Learners can also submit their assignments and case studies directly on the platform and remove the need for manual and paper-intensive activities. Entire learning schedules and calendars can be planned and executed by our platform feature called “**Schedulo**” which transforms the traditional LMS experience to a regular calendar scheduling experience. The “**Schedulo widget**” can be easily plugged into any of the channel pages by the respective units / portfolios to make the discoverability simple and straightforward without the need to go to the LMS section and search for the relevant topics.

### Learning Analytics for Leadership and Learners

Never before have learners expected as much from learning as they do today, given the varied contexts they operate in virtually. Expectations of the number of likes, references, and comments on courses are par for the course for many **learners**.

**Integrating Telemetry at a course level**, accessible to not just leadership, but also learners, are a well appreciated feature.

Organizations can get a bird’s-eye view of analytics, where they can gauge **Course Level** analytics to view who is learning the content and from which geographies. This feature is helpful to track Mandatory & Compliance trainings to see if the entire organization has completed courses or not. Organization leaders can drive impactful learning initiatives with insights from ‘**Analytics**’ and ‘**Heartbeat Telemetry**’ as well as keep a check on the learning patterns of the entire organization. Through extensive activity tracking, reports, and personalized dashboards, they can develop and manage talent productivity.

### Consider as you implement in your organization:

1. What are the said and unsaid expectations of learners in your organization as you navigate the learning and development ecosystem?

2. Have you considered empathizing with your learners on the areas that they struggle with as they learn on your current learning platform?

3. Who are your primary consumers – what are their generation needs, learning needs, and social needs – and are you meeting these?

4. Have you considered good-practices of other industries and what they offer to customers that would apply to your context and learning strategy as you align it with the expectations of tomorrow?

**While features are a starting point for learning experience, data is the new oil that drives it. Let’s see how learning ecosystems can deliver on data-obsessed L&D.**





# POWER OF DATA UNLEASHED

We started the journey of Future of Learning with the 4IR. We saw how the 4IR was making an unprecedented impact on Work, Workplace, and Workforce. To survive in a time of such dramatic change, the culture of lifelong learning is important. It is not possible to drive this culture of lifelong learning by the platforms of the past. The entire learning experience had to transform and adapt to the needs of these new times. It had to address the completely different needs of digital natives – or the new workforce which has literally grown up accustomed to convenience and choice offered by the digital ecosystem in their personal lives. One of the most important outcomes as well as the very foundation of today's digital ecosystem is the vast amounts of data about events, activities, and the way humans and their machines interact with each other. What is even more important is the way this data is treated. Data has been used in unusual ways that were unimaginable till now to deliver features that may have only been seen in Sci-Fi movies.



This gets us to a fascinating question. Do we know what kind of data points or facts the learning ecosystems can provide us with? Let us consider the touchpoints. An individual accesses the learning platform – an important data point. What about an individual clicking on a specific hyperlink on the home page? Is that not a data point? The individual wants to do a search - even this is an important data point as it demonstrates that the page that the individual is on currently is perhaps not providing enough information. Next, what is the individual searching for? How long does the search take to get the results? Are individuals always clicking the first few links on the results page? Do they have to go down the list? Or do they have to navigate to the second, third, or subsequent pages to get the result of their interest?

This is just the tip of the iceberg. Next, the individual clicks on a specific course. What is the duration spent by the individual in going through the course? Is there a difference if the content is a

video vs text? Is the time spent on some parts of the course longer than the other parts? Could it be because some parts of the course are not very well explained? Does the individual complete the course? Is there a similar pattern if we were to compare with other individuals using this course? What do individuals do after completing a specific course? Are they going through the course more than once? If so, why?

Let us focus on the platform now. The platform too has a whole new set of data points like the ones described above. How many individuals are visiting the platform every day? How much time do they spend on the platform? What features do they use the most? How quickly are they able to reach the content they are looking for? Is their journey on the platform guided by the help agents on the platform? Or is it based on the goals set by their managers? Or is it random? Do they share their experiences with their peers? Do they like to do group study or self-study? How often do they reach out to the cohorts? Do

they provide feedback on the course? Do they have comments on the platform features? Do the comments have a pattern?

We can consider each aspect of the learning ecosystem and come up with many different questions. Every question that we ask can potentially become a data point and can be put to use in one way or the other. But how do we translate these questions into meaningful data points from the system?

### The Data Capture

There has to be some kind of order to the data or the facts being collected. Every question that was asked in the earlier sections can be broken down into an action or a set of actions on the platform. There has to be a certain way to capture these actions. Some organizations may choose to define their own templates for this purpose. These templates may be quite useful in moving information across different systems within the organization as the other systems are

packaged in such a way that it can be reused across different Learning Management Systems (LMS). The second one is how the communication happens between the content and the LMS at run-time. In addition to these two items, SCORM 2004 introduced the Sequencing and Navigation (S&N) specification. The S&N specification had an Activity Tracking Model that helped in capturing facts like content completion status, time spent on the content, scores with respect to questions asked, and such similar data points.

While SCORM is still very widely used, it is important to note that it was first put in place at a time when all content was delivered only through LMS which was installed on a desktop connected to a network. From that perspective, it may not be able to cater to learning activities happening outside the LMS. This is where xAPI or Experience API or Tin Can API (xAPI was developed as part of Project Tin Can) takes over. It is an e-learning software specification that is gaining popularity because it removes many constraints that SCORM had and makes it possible to track learning that could be happening over mobile devices, social learning, offline learning, and various other mechanisms outside of the LMS. At the root of it, the specification outlines how the different kinds of learning experiences can be tracked and recorded. The event or activity related information is stored in what is called the Learning Record Store (LRS). The data residing on the LRS servers are the initial ingredients for various types of data analysis routines.

In the case of Infosys Wingspan, we use the Sunbird Telemetry Service as the means for recording all the events. This open source telemetry service is much more broad-based and caters not just to the learning industry, thereby making it feasible to collect signals originating from sources outside of the learning ecosystem as well. The service itself is based on the principle of tracking information that will help address questions like who did what, on what, and where, using what, about what'.

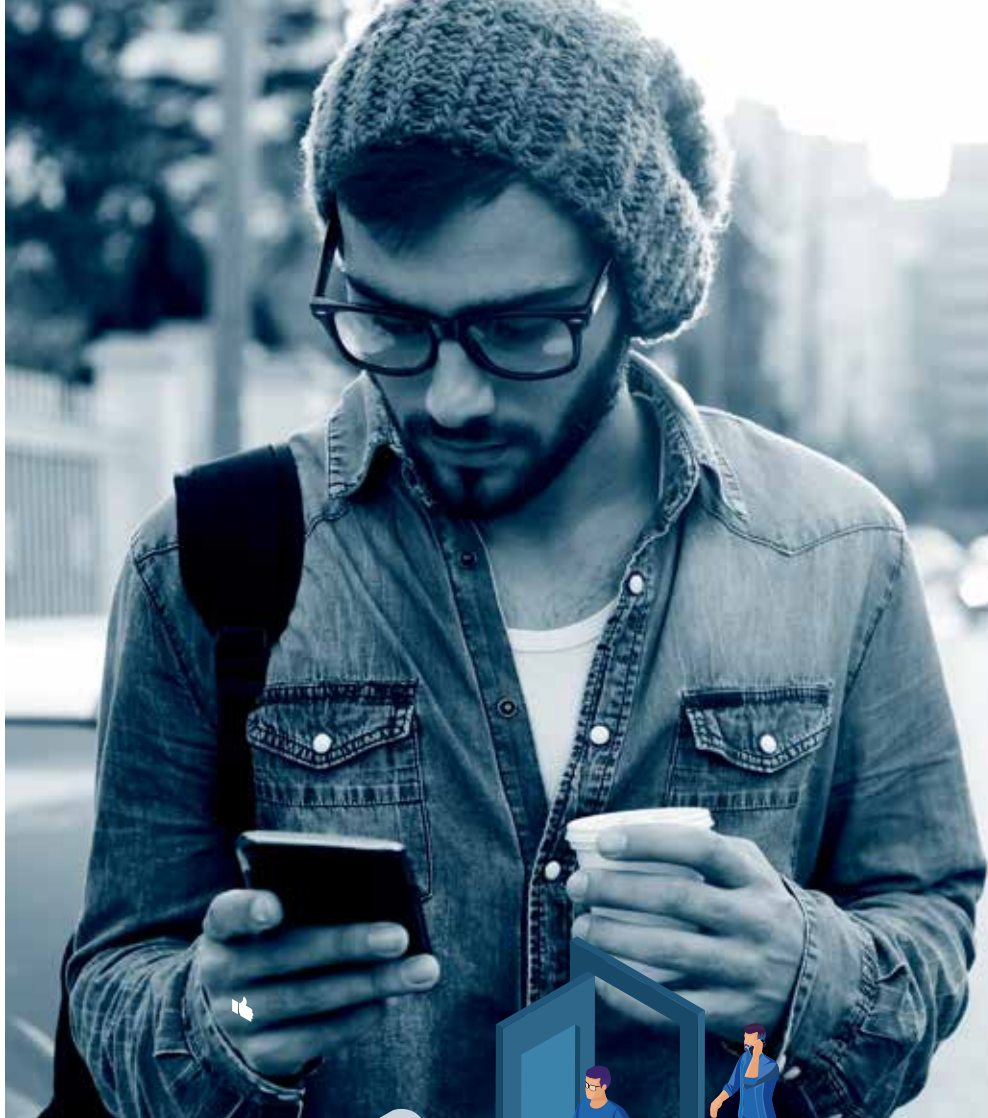
An important learning for us while building the platform was the way in which the telemetry elements must be dealt with. It needs to be ingrained in the base architecture of the platform in the same way as one would handle the security or scalability requirements. If adequate considerations are not made for this important aspect upfront, later addition of it only makes it look like shabby patchwork. Moreover, the flow of details is not going to be as smooth.

The early planning with respect to telemetry services at the time of building the Infosys Wingspan platform has been a critical factor in ensuring that the platform does not destabilize owing to the enormous burden of tele-metering. To put things into perspective, the amount of telemetry records processed by the platform ranges from three to five million records daily.

### The Data Deluge

Of course we have the data now. But, what do we do with it? The proverbial million-dollar question! In the current times, most organizations collect a lot of data about practically everything that is happening within the organization. To put this data into meaningful use is a whole different thing.

At Infosys, this large quantity of data is one of the components that contributes to the highly-networked sentient organization that we are. Data points are the sensory inputs or signals to the "Digital Brain". The Digital Brain picks up these signals, interprets them along with signals from



other parts of the organization, to address any situation much like how a living organization is capable of reacting to external stimuli.

With respect to the learning ecosystem, all of this data plays an important role in delivering key insights to nearly every stakeholder. The powerful Machine Learning (ML) algorithms that use this data drive many of the features on the platform.

### Learner At The Center

For a first-time user, Infosys Wingspan platform starts by offering the "Learning

**Recommendations"** based on the learning patterns of similar learners already on the system. Once onboarded, as soon as learners key in their areas of interests, there is a list of relevant content from which they can pick and choose.

It is no surprise that these features can benefit existing users as well. But this is not all. The platform keeps track of where they stopped their learning journey the last time they were on the platform, where they should continue the learning journey from and so on. All this information is available in the **Continue Learning** pane of the platform.



also expected to use the same templates. The assimilation of the information will be much faster with organization-wide uniform templates.

While the collection of data using organization-wide common templates has its own benefits, there are some challenges too. The biggest challenge is that the organization needs to bring in some kind of standardization. This is no small task. It takes time. This is where the industry standards and reference models come to help.

Shareable Content Object Reference Model (SCORM), as the name suggests, is a reference model. There are two important things that are governed by all the different versions, (namely SCORM 1.1, SCORM 1.2 and SCORM 2004) of this model. The first one is how content is to be



The adaptive features of the platform rely heavily on real-time data collection and processing to produce powerful insights that shape user experience. It has been wired to listen to incoming signals from the learners. Using the principles of sentience, these signals help in delivering rich experience to the learner in real time. For instance, the adaptive learning feature uses the concepts of zero latency and instant simulation. Zero latency helps avoid multiple layers of processing before anything meaningful is extracted. Instead, it uses the data that is available at the point of origin in a judicious manner to minimize iterations. Instant simulation flows from zero latency. The platform evaluates performance data of learners and creates the what-if scenarios in-situ to guide them through alternate learning paths that are more likely to be suitable for them. Adaptive assessment is another feature on the same lines. In this case, the idea is to progressively modify the level of the assessment questions in a manner that is aligned with the aptitude or capability of the learner.

**Search** is another feature that is heavily data-driven. The data in this case is derived mostly from unstructured data contained in the content. The listing of search results is done based on the relevance of the content. But over time, as the pattern of learner's use of search results change, the relative order of different content within the result set might also change. The objective is to provide the learner with content that is seen as being the most relevant in a given circumstance.

An amazing side-shoot of the Search feature is the **Concept Graph** that displays adjacent topics to the searched topic in a graphical form. While the graph itself is the outcome of ML algorithms that relate different topics using structured and unstructured data points associated with the content, the association between nodes of the graph could change over time depending on what is considered relevant by learners.

It would look a little far-fetched if it is said that the data can motivate learners. But that is exactly how it has been used to build certain features on the Infosys Wingspan platform. Using the principles of gamification, the learner history of the peer groups (after appropriate abstractions) is used to create an environment of competition for the learner. In many instances, it motivates learners to do that extra bit to outrace their immediate peers or nudge the learners over the finish line of a course.

Learner history information is also used in the Goal feature to show to managers how many learners have already finished a course, how many have subscribed to it, etc. While setting up a learning plan for the team members, this data is a good yardstick for managers to choose between two similar courses that have different usage patterns.

### Guidance for fresh hires from colleges

Over the years, at Infosys, fresh hires have been trained in conventional classroom format, continuously supported by trainers. At its peak, we have over 14,000 to 15,000 college graduates learning synchronously in different locations around the world. Even though latest tools and techniques including the Next Generation Talent transformation platform were being used for training this large group, performance tracking was still being done in a conventional manner.

With some conscious mining on our platform for this segment of learners, we arrived at insights that amazed us at first. Some of this included the patterns of peak and ebb performance amongst our learners based on the academic streams they joined us from as well as the times in their learning phase where they needed personalized input from their learning facilitators and trainers. We ran some experiments and realized that the data could help augment the efforts of the trainer with inputs on learners who were participating

effectively in learning sessions and those that needed additional support.

By predicting a learner's potential to success or path to success, the learning environments could be tweaked to offer the most optimum learning. As learners took the tests and assignments, we could derive data patterns of their performance. Using this, we could identify the areas that needed intervention and the learners could be enabled through additional assignments and additional sessions for doubt or query clearing.

A highlight of this exercise is that the study was done keeping the data sensitivity and the privacy needs in mind. The prediction model is itself built such that it can provide the desired output using abstracted data.

### Data for content writers

Content writers are key stakeholders who benefit immensely from data. The number of learners who are accessing the content is a direct indication of whether the content is relevant or not. The amount of time being spent by the learners on a specific content artefact may relate to whether the content was written in simple terms or is very complicated to understand. Other consumption patterns can provide insights on whether the format (say video vs text) needs to be modified or if the content is too long.

The performance of learners on quizzes and assessments are another set of valuable data points that can lead to many inferences. Poor performance by a majority of learners in assessments following a certain course may indicate a problem with the course itself. Performance details correlated with the learning history of learners can provide insights into the relevance or irrelevance of prerequisites.

Learner performance on individual questions can reveal a lot about the question itself. A question that is answered right by every single learner

may need to be given a lower weightage in the overall evaluation. A question that is answered incorrectly by a large majority of learners may indicate an error in the question or the options provided for answering the question.

Choice of wrong options to a question can in itself provide very valuable information. It can reveal a lot about the learning capabilities of the learner. For such deeper insights, data capture may not be sufficient. It is important to position the question at the right place within the course. More important, the question and the options for the same need to be designed meticulously.

### Feedback for trainers

Trainers are a group of stakeholders who are often challenged to find the right set of metrics to prove that they have been effective. Typical metrics include number of learners who clear the test administered after the course or the feedback that learners provide about the trainer. But these inputs are available after the fact.



In Infosys Wingspan, KONNECT is a feature that can provide a different view on trainer engagement with learners. Be it an online session or a classroom session, they can be made a lot more interactive using KONNECT. It is a feature that helps in administering quizzes during the sessions, obtaining responses from learners online, and evaluating them immediately – all in real time. These responses give immediate feedback to trainers on training effectiveness. They can use these insights to change their teaching styles in real time to make a stronger impact.

KONNECT can also help in gauging the engagement levels in a session. The number of responses to a quiz could be an indication. A pattern among learners in providing responses (like a group of learners waiting for others to submit their responses) can provide immediate understanding about learners' capabilities.

Like KONNECT helps trainers, trainers can similarly help the platform in collecting some

applied to the data based on the needs of the management. These reports can provide both a comprehensive view to the senior management or a very granular view for middle managers who are searching for specific skills or analysing their team member skills.

### Can the platform help itself?

The platform itself becomes a beneficiary of the data it creates. Sounds complicated? It really isn't. The platform is like a growing organism. Enhancements are made to it on a regular basis to add more features. The question is whether all the features added are being used in the way it was envisaged. The answer to that lies in the data. Various usage metrics are captured for each feature available on the system. If these data points paint a discouraging picture for a particular feature, it is time to relook at the feature or decommission it. On the other hand, if the picture turns out to be positive, such features are probably the ones to be further strengthened or invested in.

This kind of data-evidenced feature enablement has another advantage. It helps in driving micro-changes. Micro-changes start with small changes in a procedure or practice which are periodically augmented by similar such adjacent changes. Any fine-tuning to these small changes can be accomplished by using a combination of platform-driven nudges or reward and incentive mechanisms. These micro-changes, over a period of time, help in creating new procedures or practices with minimal resistance. This model takes on special significance especially if one is in the process of establishing lifelong learning culture within their organization.

Last but not the least, these data points can also be used for self-healing of the platform. For instance, the system need not wait for someone to report a failure in loading content in a course. It can automatically recognize it and reach out to the team that can fix it. Deterioration in performance in any part of the system can be alerted by the sensors that are tracking the health of the system. The linkages between one content and another can be auto-tested periodically and tickets raised to fix them much before they are encountered. The possibilities are many and left to our imagination.

### Heady mix of AI and data

So far, it has all been about data and data alone. Let us now add some AI to the mix. It opens up a completely new set of exciting features. Virtual Assistants have been around in one form or the other for over two decades. But they have evolved significantly in the last few years, thanks to Artificial Intelligence. Their improving cognitive intelligence has enabled them to engage humans in conversations. Zoiee, the virtual assistant on Infosys Wingspan, takes this feature to the next level. Like any typical virtual assistant, it does a lot of different things like helping, motivating, and answering the queries of the learner – all in real time. But what differentiates it and makes it so much more useful for the learner is the use of the contextual information to refine its response. Zoiee's ability to learn from its interactions with learners makes it that much more in-sync with them.

Interactions with Zoiee can be very interesting for learners. It dresses up differently on different days of the week. It engages with learners in one-on-one conversation very much like real-life conversations. It even has a sense of humour and can tell jokes.

crucial information from the classrooms. One of the defences offered for the preference of classrooms over self-study modules is that classrooms offer instant access to the trainer in case of questions or doubts. But, a similar feature can be made available in self-study modules as well. Trainers can capture these questions and doubts in the form of FAQs or "Classroom Question Banks". This question bank grows over time. Trainers can obviously benefit from such a question bank by being more prepared for their classes. But it can be used in a much more powerful manner for the self-study modules that we will talk about in a later section.

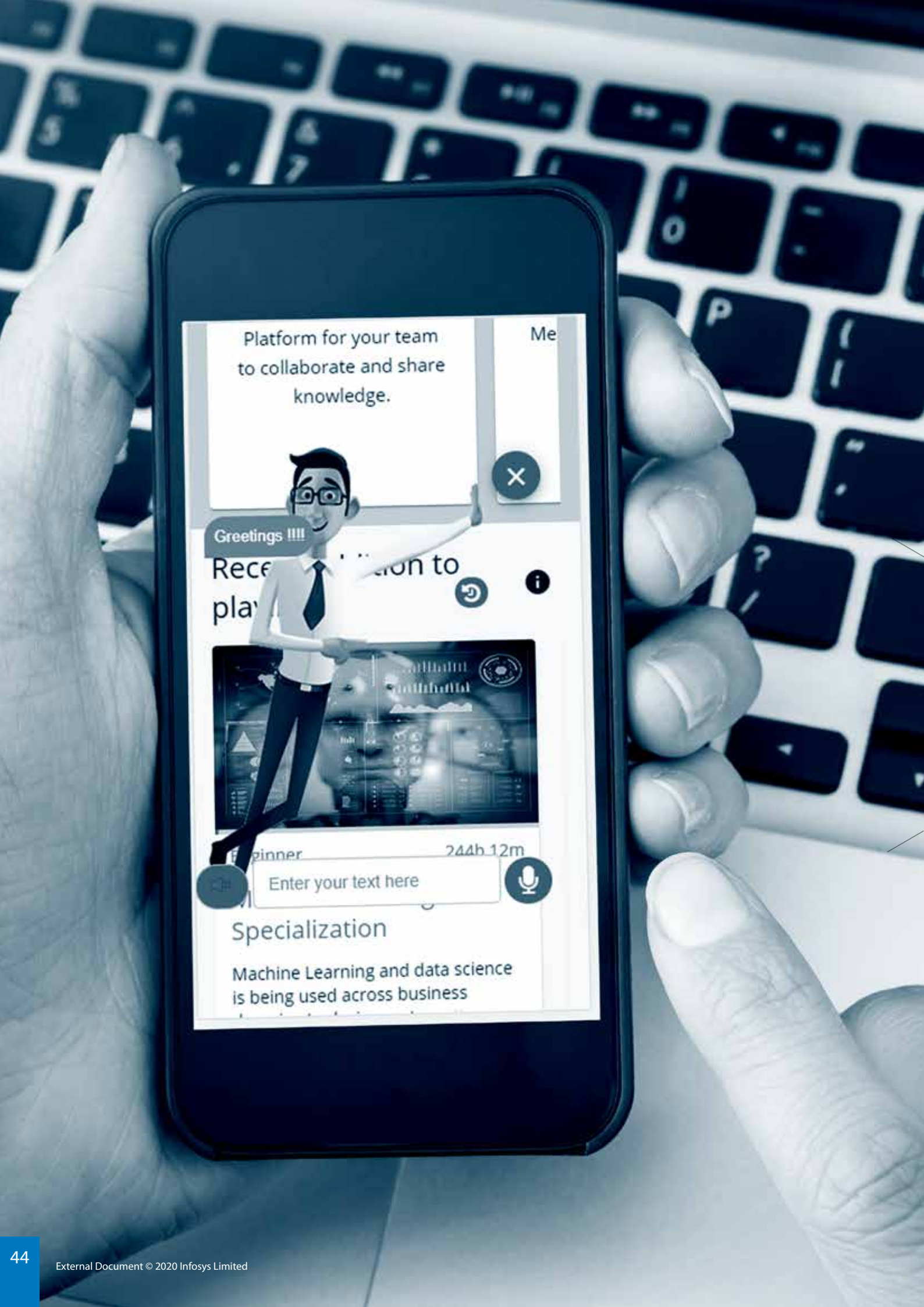
### Big Picture for Management

A lot of investments are made to develop sophisticated Management Information Systems (MIS) to help the management with data aggregation and analysis. But with the kind of data and quantum of it that is already available through the Infosys Wingspan platform, management reports can directly be created on the platform. The data on these reports can be downloaded as required.

The reports itself are designed in such a way that they can be drilled down based on multiple dimensions like the location, the role, or the department of the learners. Filters can be







On a different note, Zoiee can guide the learner if asked to do so. It helps the learner to sift through vast amounts of content on the platform and delivers what is most relevant. It can reach into its own database to answer questions that the learners may have. In situations where it does not find what it needs in its database, it automatically and seamlessly reaches out to the internet. It can also dial in an expert for specific topics. Zoiee is a powerful agent that can create a difference in the overall learning experience.

In order to leverage Zoiee's potential in the digital learning environment, our teams are experimenting in many innovative ways. An interesting experiment that is showing great promise is to use it in conjunction with the "Classroom Question Bank" (outlined in one of the earlier sections). At the end of an online course or self-study module, Zoiee would prompt the learner to ask questions. If learners ask any questions, Zoiee would be more than prepared to provide an answer. A by-product of this interaction is the incremental growth of the question bank itself which will certainly benefit subsequent learners. If the learner is not keen on asking any questions, Zoiee still has something to offer. It brings up the top 3 or 5 queries - along

adequate opportunities for learning to leaders, managers, and team members alike? The answers to these questions and other similar ones provide an idea on coverage. Once the coverage is established, the next test is that of **Consumption**. While features and content are all available, who is using what for how long? Is the use random in nature or is there a pattern to it? How long are the different stakeholders using different features? Is there a pattern to it? All these data points put together give an idea on the consumption of the content and services. Next comes the quality of consumption. Are the learners just skimming the top or are they willing to get into the details? Are learners interested only in the learning material or the assessments at the end of the course? Is there a correlation between the background of learners and the progress they show on a course? Overall, are the courses taken to **Completion** or left partially done? The evidence of assimilation of the concepts and skills cannot be witnessed just by the Completion rate. There has to be a standard way to measure it and this is where the **Certification** comes into the picture. Certification puts to test the learning in a controlled environment by providing a set of questions of varying difficulty levels or asking the learner to



with answers - that learners have usually had when learning specific topics.

**Bringing the parts together**

The information that can be derived from the available data is immense. Addition of a pinch of imagination to it can yield rich dividends. However, it is important to keep reminding ourselves about the objectives. The objective was to drive lifelong learning with learning experiences that are in keeping with the times. Our efforts, especially in the area of data analysis, should constantly align with this objective.

A simple validation technique for us at Infosys has been to put the 6 C strategy to test. The 6Cs constitute the six focus areas in the learning ecosystem. It starts with **Coverage**. Is the content covering the breadth and depth of the topics involved? Are the features on the platform making sense for all the different stakeholders? Is the platform and the content on it giving

analyze a case study or provide a solution to a problem with certain predefined constraints. But clearing a test or certification should not be just for academic purposes. It has to build **Competencies** in learners. The competency building can be best evidenced by tracking changes in the way they handle their daily tasks, the feedback they receive from their managers, their standing amongst their peers, customer satisfaction index, etc. This brings us neatly to the final C - **Correlation**. Are these competencies aligning with the skill hierarchy? In our case, the Horizon 1-2-3 classification is the guiding block. How are the competencies helping in the overall growth in business? Are they providing the impetus in the short term while laying the foundation for long-term growth?

Data helps organizations understand how well the learning ecosystem is able to deliver on the 6Cs.

**Consider as you implement in your organization:**

1. Does your organization have a clear view of the learning transaction details it wants to collect?
2. Does your organization have a clear strategy for collecting these transaction details and storing in a data store?
3. Is the information in the data store readily available for analysis purposes?
4. Can the platform auto-service itself based on the transactions and the telemetry data that is being collected?
5. Are meaningful interpretations derived from the information in the data store that aid the different stakeholders of the learning ecosystem?
6. Are the different initiatives in this area aligned to the overall objective of your learning ecosystem?
7. Do you have a way of checking if the metrics collected and the insights derived are yielding the desired results as outlined in your organization's learning strategy?

**With e-learning becoming all the rage coupled with data providing deep insights, are universities - both academic and corporate - going to be redundant soon? Not really, but only if universities continue to evolve with the times. In the next chapter, we dive deep into the room for growth and evolution of these universities and how 4IR technologies are enabling it.**





# CORPORATE UNIVERSITY 2.0 – THE EVOLUTION OF LEARNING INFRASTRUCTURE

Nurturing human capital has always been and will continue to be the most important driver of business value. This is why visionary organizations around the world - including Infosys - have invested in corporate universities. These universities enable the culture of lifelong learning, and this has definitely been true for Infosys. As part of our endeavor to build and nurture intellectual capital for the future, we have focused and invested resources to develop our workforce through learning initiatives at the corporate learning center at Mysuru for the last fifteen years. We have expanded this experience across the globe and now have trainees in seven technology streams across our six hubs in the United States as well as in other locations at Mexico, Australia, Germany, UK, Singapore, and Japan.





In the times of social distancing forced upon us due to COVID-19, the concept of an in-premise corporate university may be reexamined by some. While some organizations may be gearing up for the post-pandemic reality of operating virtually for most part, the value of physical spaces cannot be underestimated. There is a value in it that needs to be not just considered but also prioritized. For us, this means that the corporate university must be reimagined. We at Infosys speak of our corporate university, as a **phygital experience** - a world of learning that permeates the physical as well as digital realms.

In the previous chapters, we have celebrated the vast potential of the digital experiences in the 4IR. In this chapter we will elaborate on how physical universities can be enriched by digital technologies. Classroom and campus experiences can be completely transformed and be made highly effective by Artificial Reality and Holo lenses, facial recognition to the Internet of Things (IoT) - all powered by advanced algorithms that offer state-of-the-art experiences for multiple stakeholders ranging from the learner to the facilitator.

As an organization that has been running a corporate university for as long as Infosys has, we have seen the needs of this ecosystem change dramatically over the years. This change was natural too, considering organizations opened the first such universities in the world over six decades ago. Six decades is a long time for the

boards that can be used for instruction. These are intelligent boards that can pull out content or have ready playgrounds. Another feature of smart classrooms is the Interactive Projector connected to high-speed Wi-Fi, with no cabling dependencies. These features make content sharing an immersive learning experience.

Classroom design has become fluidic and mobile which will save space and also enhance the overall learning experience. There is also a range of collapsible classrooms that convert to practice labs within short time frames. Rooms can also be equipped such that based on the subject that is being taught, it gets updated with relevant content. For example, if a class on Data Analytics was the previous session and the next one is on Machine Learning, the room gets configured with playgrounds for Machine Learning within minutes and without consuming mammoth effort or time. Rooms can also have movable chairs and workstations, lecterns, and whiteboards which are popular furniture in today's maker spaces. Writable walls with learning pods and discussion spaces adjacent to the classrooms and lobby areas are utilized well. Large touchscreen collaboration screens from Google Jamboard,



technological needs of universities to not change completely, especially in the 4IR's rapidly evolving Work, Workplace, and Workforce ecosystem.

### Classroom innovations putting the focus on effective learning experiences

In recent years, smart classrooms have been all the rage in the learning ecosystem. These are physical classrooms integrated with technologies such as learning platforms, audience response, assistive learning devices, connectivity, and audiovisual capabilities. Classrooms have become digital with facilities like digital engagement

Prysm, or MS Surface Hub add new dimensions to classroom discussions.

Other key elements in classrooms include connectivity with robust Wi-Fi and 5G network, and networking and cabling. With movable furniture, it is necessary to have movable connectors which can be moved on a rail or removed as per the necessity of the set-up. Classrooms also need to have provisions to accommodate, set up, and record live streaming and facilitate live classroom when an external faculty comes to the facility.

As 4IR makes new technologies such as AR, VR,

AI, ML, and IoT pervasive, smart classrooms now have the opportunity to take planning learning experiences to the next level. Under planning for learning, areas that can be better utilized are registrations, scheduling, and utilization of available infrastructure. The Smart Classroom is an area we are continuously building on. Effective use of infrastructure is an important priority for many corporate universities like ours. Leveraging

which have higher probabilities of being conducted with full quorum of learners and hence getting higher priority in the rooms of their choice and being booked intelligently. Sessions likely to not have a quorum and other chosen parameters can be assigned lowest priority for room assignment.

Smarter ways of capturing attendance through

Classroom innovations in Corporate University 2.0 or even educational institutions are enabling meaningful interactions between learners and educators in data and technology rich environments. The current phase of social distancing during the pandemic does not mean that everything will be virtual forever. Organizations must make technology investments in their own space or hire rented



the full capacity of our classrooms has been one such area. With investments in camera-based infrastructure in classrooms, we check for utilization to full capacity. A follow-on action which can be triggered to manage capacity is that we send out notifications to specific areas where audiences would be present. This includes the lobby area of the classrooms where learners are waiting for an opportunity to join, pop-ups in the learning system itself, where wait-listed participants await a notification of last minute availability, employees who are on the bench and can make minor adjustments to their calendar to become available for spur-of-the-moment change of mind in attending a much sought after class; the list is endless.

From another perspective, patterns can be checked to see if a particular class has a lower quorum of attendees than the capacity of the classroom and needs a change of venue to a smaller capacity classroom for better utilization. Booking and scheduling can also be managed prior to actual usage, where nominations and registrations to classes can be monitored. Algorithms can be used to identify the classes



facial recognition algorithms and participant presence is another area that can be managed effectively. From swipe machines that record entry of participants into the classroom to cameras that work on facial recognition, the solutions that can be leveraged are aplenty. The chosen infrastructure can also capture learner details based on privacy grants agreed to.

spaces for learning. What we have shared are the infrastructure elements we need in place for optimum learning experiences.

### Technology-rich facilitation –





## infrastructure innovations for learning experiences

Facial recognition for attendance can also capture data that is valuable in other ways. Metrics connected to facial recognition allow the educator to get a holistic view of the participants in their classroom moments prior to starting the class. A quick summary on learners, their educational and career backgrounds, those who have completed assigned prework, other trainings they have attended, are all valuable inputs that can help educators shape their student interactions and class content. Participant registration through facial recognition can enable this.

With AR & VR, educators have a brand new opportunity to provide immersive learning experiences, truly bringing abstract concepts to life. These technologies in combination with an all-encompassing learning experience along with data analytics enable educators to keep in view each individual learner's background, skill level, learning capability, and comprehension in real time. This allows them to provide additional assistance to each student as required.

Digital Twin is an interesting case that can further enhance the experience of AR and VR for how we have leveraged technology to teach subject areas that need travel to physical spaces that may not always be easily accessible. This can be done in two ways. The first of which is a digital system of a subject area which is physically available; the digital twin gets input from the actual physical system and evaluates and replicates the behaviors. It now becomes available as a specimen for the training. This is a software model that can be used to explain the actual behavior of the system. It can be experienced and visualized to see how complex systems will work and respond, for example Heating Ventilation and Air Conditioning (HVAC) system or even a gas turbine in an aircraft. It can be coupled with AR and VR to ensure that learners have a better visualization and understanding of the systems they are studying.

By clicking and working with the Digital Twin, the learner can understand procedures and leverage the simulations to practice themselves. The VR systems can help them experience practical lessons in a deeply immersive environment. Learners will understand the effort they require, the pressure they can apply, and other such dimensions of the learning experience.



Facial recognition is used for analyzing the mood of participants. The mood will give signals to educators, who can in real-time change the offering to suit the needs of the learners. This can range from introducing a quick change of instructional mode by leveraging a job aid like a video to introducing exercises for practice engaging the whole brain of the learner, or even a brief interaction method to break the monotony of the lecture model. This can be an intuitive inference offered to the educators.

IoT can leverage data analytics and AR & VR for enhanced learning experiences. Even if participants are virtual, a classroom simulation can be delivered using holo lens. When they look at a participant, they can get details of each participant, enabling them to understand their audience even better. An important use case of such a learning experience is when an educator is asked a question that they don't know the complete answer to, and would prefer to consult a subject-matter expert before responding to their learner. Often, educators choose to defer answering such questions and assure the learner that they will get back soon. However with virtual collaboration and VR tools like holo-lenses, educators can connect with an expert in real time and even invite them to join the classroom to address specific questions, add more perspective, and even bring in another point of view. This enhances learning in unexpected ways.

## Campus innovations expanding effective learning experiences

A defining feature of today's smart campuses around the world is that learning in these environments is no longer limited to the classroom. Many campuses are now completely Wi-Fi enabled. At Infosys, apart from Wi-Fi within

offices, we have also enabled continued learning in open spaces and during travel. We deliver this using Raspberry Pi-enabled Learning Hot Spots across campuses and on buses. With a simple and inexpensive hardware such as this, universities can empower students with learning content anywhere, anytime. With the combination of our learning experience platform along with Learning Hot Spot, Infosys learners access learning content in the campus, on their commutes, or on long-distance travel assignments – anytime, anywhere. Quite literally.

Given new learning contexts, organizations must also conduct quizzes and other engagement applications that allow remote learners to feel connected and learn synchronously as a community. Live polls, understanding how audience responses are trending, evaluating how one compares in these are all part of social experiences that makes learning engaging. When learners are connecting virtually, they could be distracted. To prevent this, learning engagement is a key focus area for us. For an educator or facilitator, observing learning patterns on these applications and the learning platform itself help gauge learner participation. They can use this insight to customize and offer additional support to learners as needed. While the focus on the entire cohort remains consistent, there are immense possibilities to personalize learning for each learner. In the digital learning ecosystem, lifelong learning takes shape with solutions and platforms that are designed with learner experiences and collaboration at their core and living labs for experience.

Collaboration finds a new meaning when it is embedded into the learning platform; The Learning Experience becomes a 360 degree experience. We deliver this through our

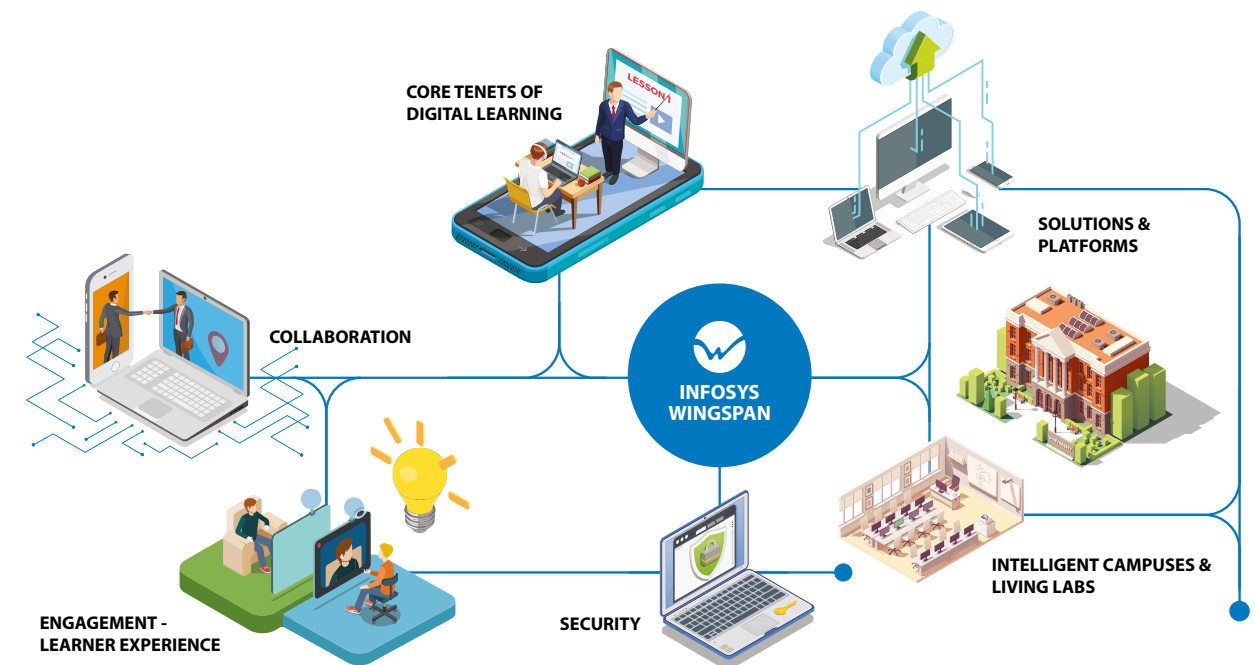


Figure 5: Infosys Wingspan - converging the moving parts of lifelong learning

interactive, feature-loaded ZION collaboration platform which is integrated with our learning platform. It brings collaboration to process and process to collaboration. The platform allows event discovery and new connection experiences like collaborative whiteboards, collaborative note taking, polls, breakout rooms and co-browsing experiences for learning and explanation.

For practice, our Smart Living Labs help learners experience learning differently. The learning experience is also constantly updated with skills that are in high demand for our organization. For Infosys, relevant skills are clearly identified as per Horizon 1-2-3 and employees have an understanding of which skills will be most critical in their career progression within the organization in the short, medium, and long terms.

Also, with the pandemic bringing up new demands each day, the need to keep workforce relevant has become non-negotiable. For many businesses, it is critical that their workforce is

engaged and productive throughout the period of remote working, until the situation is back to normal or what the experts are calling the 'new normal' in a post-COVID world. Organizations are already grappling with a talent crisis, especially in 4IR technologies. Large incumbent enterprises struggle to recognize potentially game-changing market stimuli, which means that they have limited ability to spot new things and to respond boldly with new business models and choices. Add to this the current situation of a lockdown-like scenario where access to office premises, technology, and classroom training facility is curbed significantly.

The aspiration to nurture start-up-like responsiveness, increases the velocity of innovation, and builds new digital-powered business models in these times that demand new ways of working and thinking. During these times, the employees' ability to learn, re-skill, and keep pace with what is required of them in this situation will define the success road map of an

organization, both during this period of testing, and the period once the pandemic is over! Continually refreshing employees' knowledge and skills via anytime, any-device, anywhere learning, can help them perform better in both existing and emerging roles. Whatever the situation may be, learning should not stop. A pandemic may bring everything to a standstill, but organizations work to inspire the spirit of their workforce, and their ability to learn, move ahead, and contribute towards keeping the enterprise live at all times.

With continuous learning, upskilling, and re-skilling being the only options for growth, organizations must take a critical look at their approach to learning, freeing it of its traditional mindset to embrace a culture suited to the digital age. This approach will pave the way for a new tomorrow that the world desperately awaits.

## Consider as you implement in your organization:

1. Have you designed a digital ecosystem for Lifelong Learning in your organization that is geared to absorb the short-term impact of the world around us while maintaining the integrity of the long-term mission?
2. Would you describe your learning ecosystem as largely physical, blended with some

digital components, or can your learning ecosystem perform in the digital world under circumstances like the current forced remote working?

3. Has your internal system evolved to address the learners take learning beyond the classroom to Wi-Fi zones, homes, and even to their commute, or in their entire social set-up?
4. What different technologies have you leveraged to create digital infrastructure like

AR, VR, IoT devices, QR codes, and others to enhance the immersive and interactive experience for learners?

5. Have you considered integrating advanced collaboration features with learning experiences for your employees?
6. Have you considered a seamless experience of advanced collaboration features so that your learning and remote learning experience is enhanced?

**Even as organizations and universities take into account the new needs of the new workforce, we must recognize the importance of L&D marketing communication for two reasons - 1) Large-scale awareness of learning programs and 2) Enabling continuous engagement from learners. The next chapter dives deep into how L&D communication must evolve to meet these objectives.**



A man and a woman are shown from the chest up, looking towards the right side of the frame. The man, in the foreground, has dark hair and a beard, wearing a light-colored shirt. The woman, behind him, has blonde hair and is smiling, wearing a light-colored top and a grey cardigan. They appear to be in a professional setting, possibly a meeting or a presentation.

## LEARNER ENGAGEMENT - WHAT L&D CAN LEARN FROM MARKETING & COMMUNICATIONS

“The best marketing doesn’t feel like marketing.” - Tom Fishburne

Learning in the context of a corporate organization has predominantly taken the approach of being mandated. Perhaps it works well too, given that the education system that leads to our careers has a similar approach. However, learning in corporate environments cannot be measured by the same yardstick or rolled out with the same attitude. Adult learning or Andragogy is very different from Pedagogy and the difference lies in ensuring that the decision making or the choice is in the hands of the learner. **But first, let’s take a slight detour and understand Andragogy.**



Malcolm Knowles might well be considered the founding father of adult learning. He contrasted the concept of andragogy, meaning “the art and science of helping adults learn,” with pedagogy, the art and science of helping children learn.

Knowles (1968) popularized this European concept over three decades ago. He labelled andragogy as an emerging technology which facilitates the development and implementation of learning activities for adults. The basis of this approach was six andragogical assumptions of the adult learner:

- o **Need to know:** Adults need to know the reason for learning
- o **Experience:** Adults draw upon their experiences to aid their learning
- o **Self-concept:** Adults need to feel responsible for their decisions on education, involvement in planning, and evaluation of their instruction
- o **Readiness:** The learning readiness of adults is closely related to the assumption of new social roles
- o **Orientation:** As a person learns new knowledge, he or she wants to apply it immediately in problem solving
- o **Motivation:** As a person matures, he or she receives their motivation to learn from internal factors

As an organization focused on lifelong learning long before it became the industry buzzword, Infosys has built an active ecosystem of marketing and learner engagement through the years. The primary reason for easing employees into the learning culture instead of making it mandatory is to ensure it becomes a part of their DNA. This means that we influence their habits at a micro level and encourage them to make changes to their routine, applaud those changes, and encourage them to stick to them until they become habit-forming activities. This approach towards making learners change their micro routines, is called micro-change management. This is a sigma of many micro changes which leads to change at the organization level.

Learning is the foundation of every organization. So what is different at Infosys? Why bring in a learning marketing team into the mix? Well if the primer on Andragogy was anything to go by, then we know that organizations have an uphill task, in the context of competency development. No two individuals are the same and yet we expect adult learners to follow a preset learning path in a preset methodology, and achieve the common results of skilling.

Unfair? Yes, we think so too. But the narrative alters significantly when, in the context of Infosys, the Education team brings in a sense of purpose for learners. The Education Marketing team plays a significant role in this effort. Learners come to learn and gather knowledge in the quest of acquiring additional skills. They start but as we know, completion can be a challenge. As working professionals, it is difficult for them to manage work and learning efforts. Therefore, it has to follow a marketing approach where the consumer has to be constantly reminded or nudged to stay on course, literally.

There is an engaged yet lightweight machinery that works on creating awareness, engaging the talent to sign up, and then support them to complete what they started with an intention to get certified by consuming the learning artefacts or services. On completion of this cycle, these learners go on to become champions of the learning team. The sense of purpose is what helps in the active engagement of an adult learner.

Chapter five extensively narrated to us about how data plays a critical role in the learning function. It is a significant driver to help the learner develop new routines to form habits through nudges, rewards, and incentive mechanisms. In the case of a learning function, the step could be to sign up for a learning journey or session. When they take this step the first time on Infosys Wingspan, there is a newbie badge awarded. The badge is a prompt for them to engage in similar activities to earn more accolades. Data plays a significant role in determining how the badges are handed out based on the number of courses signed up, time spent, etc.

Any fine-tuning to these small changes can be accomplished by using a combination of nudges over the platform. Over a period of time, these are instrumental in creating new procedures or practices with minimal resistance. This model takes on special significance especially if one is in the process of establishing lifelong learning culture within the organization.

**A quick reference back to Knowles' six assumptions is essential as we delve deeper into the different stages and activities of influencing the routines of employees in the act of learning:**

- **Amplifying coverage** - Creating awareness is key to informed learners. In an organization like Infosys where activities are abundant and the ability to capture attention that much more difficult, it is important to explore different options to help create initial and repeated awareness.
  - o The Education marketing team has a multi-pronged approach of weaving in the



awareness efforts. The top-down approach of leadership involvement ensures that there is a constant communication or word of mouth about the importance of learning. The leadership messages get amplified by the managers and there is a certain curiosity created to know more about the offerings and the platform in question.

- **Networking** plays an important role in getting timely placement of learning messages and creating opportunities for these messages to be relayed. Reiteration and frequent updates on the activities in the learning group make for interesting conversations and aid in employee engagement. This enables learner engagement and interest.
- **Constant communication** is across different media of print, digital, and even swag bags for different occasions.
  - o Email marketing - This is the most dominant style because even if we grudge information overload, an email and yet another email is always welcome. The email must focus on two important aspects - subject line to drive learners into action and the content in the email to carry them through the action. The creatives have to be lightweight and pertinent to the topic without excessive information. Tracking the opening rate of emails enable analytics which further fuel the communication process and help tweak the campaign structure. In fact, email signatures are a very underrated form of advertising within the organisation. Cool signatures ensure that receivers get the message and sign up to get the “exclusive” signature elements in their email.



Information dissemination is also very important.

- o Typically emails are sent across the organization at a given time to maintain uniformity. But staggering the communication is very important and from different stakeholders is even more important. For example, hours before an org-wide communication of a course rollout or initiative launch, the managers and leaders are requested to send the communication to their teams. They add a bit of client or work context to the email and then the Ansible course just does not sound like any other course but one where probably the individual's new skill, new growth

opportunity, etc. and thus the context sets in for the learner.

- o Digital presence - There are a multitude of options to reach out to an employee - the corporate intranet, LCD displays, options for microsite for a specific initiative, etc. These lend themselves to a 360-degree or an immersive experience for an employee who is greeted with dominant campaign messaging, wherever they go in the organization. The ecosystem plays a very important role and the different apps become a marketing channel for other apps or initiatives. For example, our in-house employee app called InfyMe is an active marketing channel for other





initiatives and apps like Infosys Wingspan. It cross-promotes learning schedules and new learning initiatives. Infosys Wingspan promotes the value of HR-led Digital Skill Tag programs through its banner pages. Employee information seamlessly flows between the different applications, driven by the digital brain. The information thus shared helps the user gain access to knowledge or relevant information, anytime, anywhere, without any physical boundaries.

- o Mobile marketing - In a corporate environment, the reach of mobile-based communication is limited because it could cause nuisance value. Hence communication through this medium has to be very selective and leveraged for important communications to audiences. But app-based notifications are known to drive action. In Infosys Wingspan, notifications help people know they have a playlist to accept or a goal to follow through. When they earn a new badge, they receive notifications through the browser and the mobile app. This makes it easy for personalized notifications for learners who would not otherwise be very engaged in these efforts.
- o Interestingly, the digital platform could serve as a source for introducing itself to users with its quick tour segment and introduction demos to users. The Connect engagement

app helps users stay engaged during virtual sessions and they can earn badges and digital certificates to certify their awareness levels.

- **Community & Collaboration** - Community approach has always worked whether it is for running marathons or engaging learners in similar interests of technology and domain. Community bonding nurtures and helps learners to deepen their interest in acquiring new knowledge in a certain area or even sticking together to complete a certification.
  - o The education marketing team along with educators explored trending topics to create a network of learners and spark conversations. These ideas have been prevalent in many organizations but it is about engaging learners and educators. When they come together for a discussion on such platforms, the responsibility is on the learner to glean knowledge from the SME and the educator is equally responsible for giving the right set of inputs. This joint effort sparks an idea or the output could be a learning reference that could prove handy to other users.
  - o Analytics helped the marketing team get a bird's-eye view of topics that had to be promoted, courses where learners needed to be nudged, and new courses which needed a bit of demystification. These form

fodder for various events and interactions. It also helps garner the interest of employees through the different communication channels.

- o The feature of cohorts on Infosys Wingspan provides an opportunity to create a dynamic community of talent that is learning the same topic and can connect with each other. This helps in dynamic community connect and learners are never literally alone when they are learning, anytime and anywhere.
- **Contests and Challenges** - Learning is not confined to classes and a unilateral approach of imparting knowledge through discourses. It is gained by active showcasing and participation in competitive activities which bring out the best in learners and raise the engagement quotient.
  - o A contest or a challenge has to be crafted with a global appeal and with a clear learning outcome for the learner and the organization. The marketing team keeps a tab on trending topics across social media, organization, and tie it in with the learning objectives that must be promoted.
  - o Long term adoption of new habits is possible when individuals are able to make micro changes, sustain them, and then aggregate it to a larger behavior change. Challenges are given to learners during

long weekends to ensure there is an interest generated to not miss learning amidst fun and relaxation.

1. **Fitness Challenge** - Fitness requires us to invest at least 15 minutes every day. Similarly, learning fitness demands equal effort. For example, we rolled out a contest to encourage top-down approach of leaders completing a course and challenging their peers or team members to follow suit. While doing so, they gave themselves learning avatars to appeal to digital natives in the audience. These efforts went viral and with the top-down approach, it became very easy for the rest of the organization to mimic the leaders.
2. **Group learning goals** - Teams make it easy to endure anything, and that includes learning. Anchoring contests for teams is fun because it gives them the opportunity to collaborate, turn their workspace into a colorful arena to show off their creative talents and learning achievements. What is even more rewarding is being able to demonstrate that effort to their clients too. But learners are not always self-motivated and hence it helps to incentivize and engage their leaders and managers too. Therefore, if a team has to be encouraged to complete a learning goal or master a certain set of topics, then a bumper recognition element has to be announced for their leaders as well. This ensures there is consistent motivation for the team.

- **Celebrating learning** - Motivation is a very powerful emotion. It nudges individuals to achieve the seemingly unattainable. Sometimes, the motivation is external and for good reason too. In a culture where the learner has to be actively adopted, it is important to create an environment where there is recognition of achievements and suitable rewards to encourage others to participate and bag these rewards.
  - o The team has to explore the right kind of rewards that will motivate different segments of learners. Sometimes the simple gesture of informing managers helps make the learner feel special. For some other learners, the reward could be a cool gadget and an enterprise-wide communication. In some cases, employees would love to be recognized with their family or in the presence of their family. It is important to understand what is the driver for different learners.

- o Personalization goes a long way in motivating talent. Infosys Wingspan makes it easy to leverage personalisation elements for recognising learners. For example, for the time spent on the platform, content consumed, certifications accomplished, the platform hands out badges to learner which are visible when they login.

- o The role of leadership in engaging the achievers in the learning space can never be underscored enough. When leaders take the time to meet and greet or engage with the achievers in meaningful discussions, it goes a long way in motivating the rest of the onlookers to ace their learning achievements.

- o Role models go a long way in helping others emulate the behaviour. The marketing team reaches out to teams and individuals to celebrate their learning achievements via digital marketing. The individual or group photograph is accompanied with a note on their accomplishments and sent across to the entire organisation as email communication, displayed on the digital screens across campuses and in many cases, the content makes for excellent employee engagement too.


Learning is a very personal journey and the drivers to complete it are multi-fold. At Infosys, learning is a collective responsibility and a lot of effort and thought is invested in making it relevant, engaging, and most importantly a celebration of the persistent efforts by the learner.

**Consider as you implement in your organization:**

1. Does your learning platform enable just-in-time, relevant, and insight-led alerts and notifications to engage learners on-the-go?
2. Do you celebrate the achievements of learners across the organization?
3. Does your communication strategy incorporate a phygital – physical and digital – dimension?
4. Does your communication strategy reflect local cultures in a global messaging?
5. Do you have a strategy to identify and nurture learning influencers?

**With all the initiatives in place, from platforms to content, learning assistants to new age classrooms, what will it take for lifelong learning enabled by learning experience platforms to become the new normal? Measurement. Measurement. Measurement. The next chapter explains why.**



A woman with blonde hair is sitting at a dark desk, looking down at an open notebook. She is holding a pen in her right hand. On the desk, there is a white coffee cup on a saucer to her left. In front of her is a silver laptop. The laptop screen displays a dashboard with various charts and graphs, including a bar chart and a line graph. The background is slightly blurred, showing a window with light coming through. The overall tone of the image is professional and focused.

# “WHAT’S IN IT FOR ME?” ANSWERING THE BIG ROI QUESTION WITH LEARNING MEASUREMENT

Borrowing from management thinker Peter Drucker, “If you can’t measure it, you can’t improve it.” One of the core tenets of a Live Enterprise is its ability to learn continuously, evolve, and become more productive. A question that enterprises often ask when they make a learning investment is, “Is learning an investment or an expense?” We may argue that learning is its own reward and that employees become more productive, satisfied, and engaged. But from a business perspective, return on investment is critical. Do we have metrics to measure the impact of learning on business? If yes, do we leverage these metrics enough? How often and how effectively? A learning department must find answers to these questions and find ways to measure the effectiveness of its learning programs and other learning interventions.



Learning at Infosys, the Live Enterprise way

The learning department forms the core of Infosys growth strategy, a live unit that focuses on continuous enablement of its employees to service the ever-evolving business and digital landscape. An effective learning journey begins much before the actual learning starts. It then continues even after the employee is deployed to projects, therefore contributing to the Return On Expectations (ROE) for the organization. In cognizance with an adaptable and live unit, we use systems which track metrics that rely on telemetry to listen, collect, sense, and analyze data, and help all stakeholders - learners, delivery units, talent teams, and content



Figure 6: Learning value chain: Various stages involved in the learning value chain

development teams - to make decisions that contribute to effective learning and growth. This is a continuous process. Relevant learning paths are recommended to employees to be up to speed on their skills and technology, based on the inferences from telemetry. This learning effectiveness measurement model is based on detailed studies of proven standard learning models, such as CIRO, Kirkpatrick, and Kauffman, to ensure that there is a research-oriented foundation and adoption of proven practices.

The learning department of Infosys offers anytime, anywhere, any pace learning through its learning platform Infosys Wingspan. It proactively reaches out to learners with recommendations

on what to learn next after evaluating their existing skills, and promotes self-learning with an amalgamation of synchronous and asynchronous learning. Learners can experience practice-based learning leveraging “playgrounds” and self-assess themselves on their learning. They can opt for objective and hands-on assessment leveraging the Infosys assessment platform.

- **Learning need analysis:** It involves audience profiling and finalizing the scope.
- **Learning experience:** This translates to the design and development of content to suit learner styles, profiles, and pedagogy.
- **Content sharing and consumption:** In this step, we decide the mode of dissemination of knowledge.
- **Measurement of learning effectiveness:** This step involves the measurement of various learning interventions and measures their effectiveness.

In this chapter, we focus on the measurement of learning effectiveness by learning departments across enterprises. We delve into the Why, What, and How of the subject to provide readers a 360-degree view.

What is learning effectiveness?

“We need to bring learning to people instead of people to learning”, said ed tech expert Elliot Masie. And we couldn’t agree more.

Here are some key definitions of learning effectiveness from literature on the web.

- The Return on Investment (ROI) for learning
- The degree to which learning outcomes are achieved or learning is effective
- A means to evaluate whether learning objectives are being met in the organization

There are well-researched learning evaluation models like CIRO, Kirkpatrick, Philips ROI methodology, Robert Brinkerhoff’s success case method, Kauffman and Zachman framework that throw light on learning evaluation and its effectiveness. The CIRO model employs a before and after training technique to measure the outcomes of learning[1]. The Philips model defines a return on investment level to evaluate training and effectiveness and is built on a four-level evaluation model suggested by Sir Donald Kirkpatrick[2]. Kaufmann learning model focuses on outcomes at the micro, macro, and mega levels[3]. The Zachman framework provides 36 necessary categories for completely describing anything[4]. These models provide a good foundation for analyzing training activities and outcomes.

However, a measurement mechanism should provide ways to allow predictions and alerts for making informed and just-in-time decisions as per current information radiated by data, while staying true to learning theories and principles offered by the learning models mentioned earlier. Like any live organism, the key idea here is to constantly listen and sense the learning telemetry, evaluate the metrics, analyze them to make informed decisions, and respond through predictions or recommendations to stakeholders in line with the agile way of working, and improving continuously.

Why measure learning effectiveness?

“Measurement is the first step that leads to control and eventually to improvement” said, H. James Harrington, the renowned international performance improvement and quality guru. Traditionally, the measurement of learning effectiveness has been done by learning departments using various parameters and levels. The measurement helps learning departments course-correct themselves and decide the learning interventions to be continued or otherwise.

1. Nurturing talent in the organization

Employees are the most important assets in any organization. Nurturing their talent and paving the way for continuous learning becomes imperative.

2. Intuitive decision making

Gary Klein, renowned research psychologist who pioneered naturalistic decision-making suggests in his book, The Power of Intuition, that 90 percent of critical decisions are made using intuition[5]. Intuition refers to the known, the perceived, the understood or the things that are believed through instinct which may or may not have evidence. Rather, these decisions stem from sub-conscious reasoning or thought process.

For example, let us take a learning department considering the learner as a stakeholder. Keeping in view data points like project requirements, role profiling, and previous learning history, the learner is provided course recommendations or learning paths that can be undertaken. Based on these recommendations, the learner is able to make an informed decision on what course to learn next. The system backed by telemetry empowers the learning unit to sense the relationship between sets of data and share predictions with stakeholders for appropriate perusal and action.

3. Improved closed loop responsive value chain

Quoting Taiichi Ohno, the founder of Toyota Production System[6], “All we are doing is looking at the timeline, from the moment the customer gives us an order to the point when we collect the cash. We are reducing the timeline by reducing the non-value-adding wastes.”

This sums up a value stream map or chain as envisaged by Lean principles. A value stream map is an effective way to document, analyze, and improve business processes, thus making the supply chain efficient. However, in a 4IR world, efficiency alone is not sufficient. Responsiveness too is essential. This helps organizations to respond quickly and stay flexible during disruptions. Digitization makes a value stream chain responsive. It relies on predictions, working with multiple stakeholders to correlate the information gathered, and making informed decisions.

This applies to a learning environment too. One significant value chain for a learning department happens by placing the learner (whether a graduate trainee or an experienced hire) as a stakeholder. The process indicates the responsiveness through the predictions and recommendations provided in the three major stages – prior to learning, during learning, and after learning while application of learning happens in the business units. An example of return on these investments is in our pre-campus hire program through our platform called InfyTQ. We find that learners who spend time on the platform prior to joining our organization, often reduce their on-premise training tenure by nine weeks. Another benefit is when we hire for adjacency of skills, we bring these employees into our organization and train them for the skills in demand. We find that we hire at a lower per capita rate when hiring employees with adjacent skills. This has a reduced cost, further contributing to returns on learning investment.

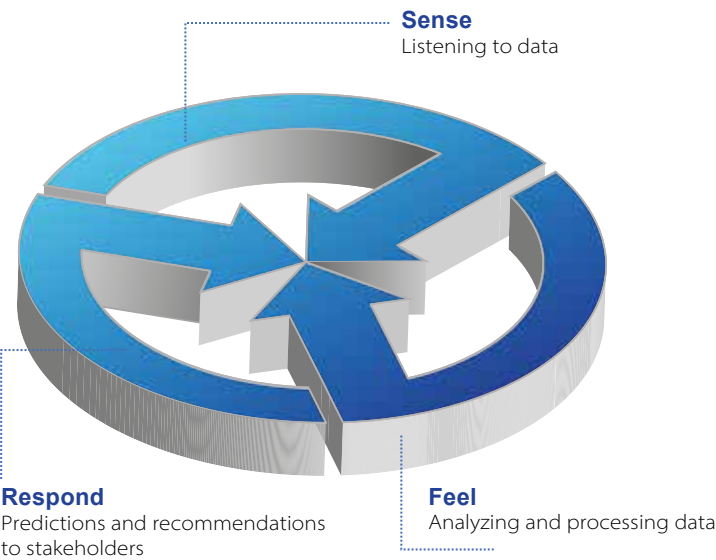
4. Adaptive practice-based experience

This allows the learning platform to adapt, personalize, customize, and improve the learning experience on the basis of the feedback - micro and macro - captured and analyzed.

This focused approach on learning through digital tracking of the learning journey will provide an effective nurturing of creative talent within the organization.

How to measure learning effectiveness?

Learning effectiveness is measured using the three-pronged approach of Sense, Feel, and Respond as shown in the below figure.







**Table 1: Feel, Sense, and Respond phases for a learner**

	Feel	Sense	Respond		
Expectations from learning department	Metrics	Correlation	Prediction	Recommendations	Meeting expectations
E1-> Deployment opportunities in business units using new Horizon skills	Learning time & patterns	Correlation between learning and assessment patterns	<p>How likely is an employee who spends 80% or more of the stipulated learning hours on the course likely to clear the end of course assessment? [completion of learning, scores]</p> <p>What percentage of employees who have cleared the end of course assessment and learnt for 80% or more of the stipulated course time likely to qualify in the internal / external certification? [completion of learning, scores, certifications]</p>	Notifications to learners from the system to spend time on learning and nudge employees if there is a lag.	If course and certifications are completed, the employees have opportunities to work in new Horizon skills
E2->Enhanced compensation and progress	Goal completion	Correlation between learning, subject coverage, and assessment patterns	How likely is an employee who completes the goals and learning paths to get refactored to a new age role? [readiness for newer roles, staffing availability]	Provide recommendations of goals and learning paths to help employees refactor.	Refactoring to new age roles may result in better compensation and career progress.

The entire measurement model needs to cater to any sized organization and must produce reliable and consistent results through automated systems aided by machine learning and artificial intelligence. Thus, this constitutes the live digital brain for the learning department.

There are various metrics that may be collected in organizations from the systems on quality, management reporting, talent planning, and productivity management amongst others. There are also a variety of predictions and recommendations by the learning department based on the metrics collected. These can range from recommendations to the learning journey itself, as detailed in our earlier segment on Adaptive Learning to predictions on mapping the right talent for the right projects to even recommending differential billing rates for projects, based on the mega data on performance indicators.

In addition to the expectations from the stakeholder, the learning department can also quantify the tangible benefits by computing the ROI.

A fundamental formula for computing ROI would be as follows:

Return on Investment = (Total gains from learning – total cost accrued for training or learning) / total cost accrued for training or learning

Just as learning is a continuum, revision, review, or alteration should be a continuous and integral activity. This will ensure that the learning unit is dynamic, proactive, and live. Agile practices and frameworks in addition to system-backed feedback can help in bringing this continuous improvement regularly and would help take action on them.

**“The goal is to turn data into information and information into insight,” said Carly Fiorina, former chief executive officer, Hewlett Packard.**

Measuring learning effectiveness is imperative for learning departments to evaluate the efficiency of their learning interventions and provide micro feedback and recommendations that help in personalized learning experiences. A live learning function should be well equipped with artificial intelligence-backed internal systems to collect or gather data, prepare the data for analysis, and process it to yield useful insights.



### Measuring learning effectiveness through a three-pronged approach

- **Sense:** In this phase, the learning department constantly listens to its various data sources for collection of data and micro feedback.
- **Feel:** In this phase, the data collected in the previous component (“Sense”) is analyzed, processed to decipher patterns, and then correlations are made to make informed decisions.
- **Respond:** The response is through predictions, recommendations, and by way of Return On Investment in learning. Depending on the stakeholder, responses vary, as the expectations differ from stakeholder to stakeholder. The ROI may be in the form of monetary value or fulfillment of expectations based on the availability of accurate data through the data systems identified.

The table on the adjacent page gives an example of applying this approach by a learning department where the learner is a stakeholder in the learning journey.

### Consider as you implement in your organization:

1. As you measure Learning Effectiveness, do you depend only on qualitative insights post interventions or do you also depend on the data collected throughout the learning process?
2. What are some examples of business outcomes that can be significantly enhanced by investments in learning initiatives?

3. Do clients and markets benefit from the outcomes created through learning interventions?
4. Do Learning Effectiveness measures in your organization understand the shift in learners’ expectations and habits in the 4IR – evaluated by whether learning is pulled by learner choice or pushed as mandatory by the organization?

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## Thirumala Arohi

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### CHARTING A NEW COURSE

I hope that by now you have got a ringside view of the various efforts that we have undertaken to drive the learning culture and experiences at Infosys. Our effort was to abstract our own experiences and articulate them for the benefit of different leaders driving similar efforts in their own organizations.

At Infosys, we believe in lifelong learning for our employees, and competency development continues to be a key area of strategic focus for us. The formal Education and Training Division was set up more than three decades ago and has been at the forefront of driving employee learning and development programs using a combination of innovative technology, content, and deep expertise of our people.

Today with emerging technologies, new delivery models, changing talent demographics, geopolitical challenges, and now the COVID-19 situation and its aftermath are some of the forces disrupting and changing the talent needs of every industry. Employees will contribute their best, when personal goals are in alignment with organizational goals. In that context, the core principles that have guided us in our talent transformation journey are:

1. **Motivating employees to learn:** To be successful in driving this transformation, we had to ensure all barriers to learning are removed. This would ensure learners are able to access resources anytime, anywhere, and on any device – thereby taking complete control of how they want to manage their learning journey.
2. **Leveraging the manager-employee relationship:** For learning efforts to be effective, we saw a need for creating an active role for managers in supporting and guiding their teams in their learning journeys.
3. **At work and just-in-time learning:** Trends indicated that employees prefer to learn on the go, at their convenience, and just-in-time of the need. For this to happen, content had to be organized in micro-learning modules and thus meet the needs of different personas within the organization.
4. **Learning experience:** Most employees are used to digital experiences on platforms like Netflix, Amazon Prime shopping, YouTube, etc. Digital learning solutions that we set out to develop also had to be designed to provide such experiences.
5. **Ready for the future while delivering excellence today:** The Agile ways of working marked by shorter and continuous release cycles meant that there is a need to balance today's

challenges with tomorrow's opportunities. Learning programs and courses had to be designed to meet these needs.

Taking learning to the heart of business, focusing on absolute relevance, such that learning leads business execution ahead of its current times, enhancing learner range from not just the employee who seeks to further their career, but also business leaders who seek nuggets of wisdom as well as insights that impact decision making and finally learning effectiveness not needing to be a past-the-date exercise evaluated based on a few stakeholders' biases but instead being experienced live through the monitoring, readings, and workings of a sentient organization.

At Infosys, we have always set our eyes on the 'Next'. We truly believe that talent transformation is not just an Infosys-specific problem statement. It is indeed every organization's key focus. In that context we launched our learning platform "Infosys Wingspan" for our clients.

Infosys Wingspan, our talent transformation platform, is already making waves in the business ecosystem for bringing new-age learning experience and advanced telemetry within everyone's reach. It creates unique learning possibilities fueled by today's technology for tomorrow's enterprise. We have now developed the following variants in our platform that we believe will further help our clients with a contextualized approach:

- **Wingspan for Enterprise Learning and Knowledge Management**
- **Wingspan for Educational Institutions in the Era of Education 4.0**
- **Wingspan for Field Agents and Factory Workers**
- **Wingspan for Intelligent Collaboration and Communication**
- **Wingspan for Enabling Learning for Call Center Employees**

Lifelong learning is the north star for organizational progress and talent development. We hope the Infosys experiences detailed in this journal resonated with you and that we find common ground in our common objectives as we continue to invest in talent and their competency development.

For a deeper perspective on any Infosys Wingspan variant or a custom-crafted approach for your organization, please do reach out to us at [wingspan@infosys.com](mailto:wingspan@infosys.com)





## FROM THE ETA TEAM

Lifelong learning has been a way of life at Infosys, since its inception over three decades ago. It has been driven by the efforts of the ETA teams, past and present over these years. Our educators have been torchbearers of learning, the development teams have reveled in their forte of inculcating best practices consistently, and our track leaders have given strategic direction to our learning mission. The Learning Lexicon is an attempt to package and share all that has been fueling the best-in-class learning efforts at Infosys. It is our attempt to give you a leaf from our daily business of crafting curriculum, interacting with learners, engaging with committed educators, and baking digital into all that is learning.

The organization has historically made significant investments of attention, resources, and passion to make learning and competency development central to its business.

We are grateful for the guidance of our Chairman Nandan Nilekani who has been a big believer of lifelong learning, and has guided us on the design principles, and driven us to aspire beyond the seemingly impossible. Our CEO Salil Parekh, COO Pravin Rao, and CFO Nilanjan Roy have always placed learning at the center of business and nurtured the team. Pravin has been a key sponsor of learning at Infosys and has constantly steered us with industry insights. Our CHRO Krish Shankar has been a vocal cheerleader of learning and competency development. Teams across geographies like the Business Partner Human Resources, Infrastructure Teams, and the Business Unit functional groups of Infosys prove that here, learning is not an effort in isolation.

Learning has and will always be a collective effort and ETA has been actively supported by delivery and sales leadership, peer groups and teams and our own employees who relentlessly encouraged us to push the bar, a notch higher, every time!

The Education, Training, and Assessment team is both grateful and delighted to have this seat at the table.

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